

The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

[The MINING JOURNAL is Registered at the General Post Office as a Newspaper, and for Transmission Abroad]

No. 2301.—VOL. XLIX.

LONDON, SATURDAY, SEPTEMBER 27, 1879.

WITH SUPPLEMENT. PRICE SIXPENCE.
PER ANNUM, BY POST, £1 4s.

MR. JAMES H. CROFTS, STOCK AND SHARE BROKER,
AND MINING SHARE DEALER,
NO. 1, FINCH LANE, CORNHILL, LONDON, E.C.
ESTABLISHED 1842.

BUSINESS transacted in all descriptions of MINING Stocks and Shares (British and Foreign), Consols, Banks, Bonds (Foreign and Colonial), Railways, Insurance, Assurance, Telegraph, Tramway, Shipping, Canal, Gas, Water, and Dock Shares, and all Miscellaneous Shares.

BUSINESS negotiated in Stocks and Shares not having a general market value.

Every Friday a general and reliable List issued (a copy of which will be forwarded regularly on application), containing closing prices of the week.

MINES INSPECTED.

BANKERS: CITY BANK, LONDON—SOUTH CORNWALL BANK, ST. AUSTELL.

SPECIAL DEALINGS in the following, or part:—
100 Cambrian, offer wtd. 30 Herodsfoot, 42½.
25 Colorado, £1 ½.
10 Devonport & Tiverton 80 Javali, 7s. 3d.
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22 East Van, £1 10s.
20 Eberhardt, £2.
50 Frontino, £2 7s. 6d.
100 Gold Run, 3s. 9d.
20 Herodsfoot, £2 ½.
50 Hultafall.
25 Canada Gold.
20 Chapel Hous.
2 Dolcoath, £2 3½.
25 Devon Consols, £2 18s 9
100 Don Pedro, 15s.
10 East Pool, £1 4½.
25 East Van, 26s.
30 East Lovell, £3.
40 Frontino, 22½.
60 Frongoch.
10 Great Laxey, £16 ½.
25 Great Holway.
75 Glenroy, 10s. 6d.
100 Gold Run, 3s. 9d.
20 Herodsfoot, £2 ½.
50 Hultafall.
20 Leadhills, £2 8s. 9d.
100 Kapanga, 5s. 6d.
50 Marke Valley, 15s.
10 Minera, £1.
35 New Quebrada, £2 11 3
100 Nouveau Monde, 14s 9

BUSINESS in CREBOR and PARTS CORPORATION at CLOSE PRICES.
** SHARES SOLD FOR FORWARD DELIVERY (ONE, TWO, OR THREE MONTHS)
ON DEPOSIT OF TWENTY PER CENT.

RAILWAYS—SPECIAL BUSINESS.

FOREIGN BONDS—SPECIAL BUSINESS.

Fortnightly accounts opened on receipt of the usual cover.

JAMES H. CROFTS, 1, FINCH LANE, LONDON.
ESTABLISHED 1842.

MR. W. H. BUMPUS, STOCK AND SHARE BROKER,
AND MINING SHARE DEALER,
44, THREADNEEDLE STREET, LONDON, E.C.
ESTABLISHED 1867.

BUSINESS transacted in STOCK EXCHANGE SECURITIES
and MISCELLANEOUS SHARES of every description.
RAILWAYS, BANKS, FOREIGN and COLONIAL BONDS.
TRAMWAYS, TELEGRAPHS, and all the LEADING INVESTMENTS.

Accounts opened for the Fortnightly Settlement
A Stock and Share List free on application.

MR. BUMPUS has SPECIAL BUSINESS in the undermentioned:—
150 Almada, 6s. 6d. 40 Frontino, 22½.
150 Bodidris. 60 Frongoch. 50 Pandora, 13s.
100 Chontales, 6s. 3d. 100 Great Laxey, £16 ½. 100 Penstruthal, 1s.
100 Chontales, 6s. 3d. 25 Great Holway. 10 Richmond, £23 ½.
3 Garn Brea, £32 ½. 75 Glenroy, 10s. 6d. 60 Parys Copper, 16s. 6d.
5 Cape Copper, £23 ½. 100 Gold Run, 3s. 9d. 50 Ruby and Dunderberg
70 Colorado, 29s. 6d. 20 Herodsfoot, £2 ½. 20 Roman Grav., £25.
25 Canada Gold. 50 Hultafall. 10 Richmond, £2 16s. 3d.
20 Chapel Hous. 50 Javali, 6s. 9d. 50 Leadhills, £2 8s. 9d.
2 Dolcoath, £2 3½. 100 Kapanga, 5s. 6d. 20 South Frances, £28 ½.
25 Devon Consols, £2 18s 9
100 Don Pedro, 15s. 20 Leadhills, £2 8s. 9d. 10 Tankerville, £2 3½.
10 East Pool, £1 4½. 10 Minera, £1. 10 Van, £16 ½.
25 East Van, 26s. 35 New Quebrada, £2 11 3
30 East Lovell, £3. 100 Nouveau Monde, 14s 9

IMPORTANT TO INVESTORS.

Shares in SOUND Tin Mines may now be bought with advantage, and an investment at present prices will, in all probability, show very profitable results before the end of the year. The following are particularly recommended:—
Wheat Pevor, South Wheal Frances, South Condurrow, East Pool, Wheal Grenville, Wheal Jane, and West Pevor.

SPECIAL BUSINESS, at close prices, in the SHARES of all the principal HOME and FOREIGN MINES.

A complete and reliable List of all the Leading Investments (published on the first of each month) may be obtained free on application to—
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OFFICES: 44, THREADNEEDLE STREET, LONDON, E.C.
BANKERS: THE NATIONAL PROVINCIAL BANK OF ENGLAND, E.C.

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BRYN GLAS.
DON PEDRO.
PANT-Y-MWYN.

BRYN GLAS SILVER-LEAD MINE.—This mine, possessing all the indications of a really valuable property, as demonstrated by practical results, considering the enormous production of lead, with a fair proportion of silver already yielded from comparative scratchings, amounting, in fact, to nearly £60,000, may be regarded as a certainty. The further development, contingent upon the sinking of the shaft and the extension of the levels upon the course of the lodes, will unquestionably open out a mine equal to, if not surpassing, the East Darren or Lisburne, which have yielded such fabulous profits to the adventurers. I have made assays of the ore hitherto raised, and have every reason to be satisfied with the result.

W. WHITE, Assayer.

BRYN GLAS.—An interest in this proved valuable mine should be secured without delay, as the shares must shortly command a high premium. The company has been duly registered, and it is more than probable that the application for shares will exceed the number to be allotted.

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ESTABLISHED 20 YEARS.—BANKERS: LONDON AND SOUTH-WESTERN.

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3 Botallack, 22½. 50 Glasgow Caradon, 19s 6 50 St. Tolcarne, 17s. 6d.
105 Bodidris. 25 Grogwinion. 12 South Frances, £25 ½.
25 Cook's Kitchen, £2 8s 9 200 Gold Run, 3s. 3d. 135 Tamar Silver-lead.
90 Chapel House. 70 Gwntow. 20 West Oliverton.
4 Garn Brea, £35 ½. 30 Great Holway. 35 Wheal Grenville, £25 ½.
150 Devon Consols. 50 Herodsfoot. 35 Wheal Agar, 43 ½.
2 Dolcoath, £35. 70 Kapanga. 50 Wheal Uny, 18s. 9d.
35 Devonport and Tiverton. 50 Marke Valley. 50 Wheal Agar, 13s. 9d.
50 Penhalls, 17s. 6d. 10 Minera, £3. 50 Wheal Uny, 18s. 9d.
50 East Caradon. 50 Penhalls, 17s. 6d. 15 West Frances, £25 ½.

BUYERS or SELLERS of any of the above, or holders of any Stocks or Shares not readily marketable, will do well to apply to Mr. BUDGE.

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UNITED STATES AND COLONIAL MINES.

IMPORTANT INFORMATION REGARDING THE ABOVE.
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A DAILY LIST OF PRICES sent (free) on application, either personally or by post.

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Recommended at Price since.
WHEAL CREBOR £2 £10 4
WEST PEEVOR 2 4
HERODSFOOT 1½ 3½
SOUTH FRANCES 4 10

SPECIAL ADVICE, with LIST of SHARES ABOUT TO RISE.
STOCK EXCHANGE BUSINESS DONE ON BEST TERMS.
PROBABLE GREAT ADVANCES.

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ESTABLISHED 1848.

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BANKERS: LONDON AND WESTMINSTER.

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LONDON, E.C.

FORTNIGHTLY ACCOUNTS opened, on receipt of the usual "cover," in Railways Home and Foreign, Mining Shares, Foreign Bonds, and certain Miscellaneous Securities.

"THE WEEK."—A SEPARATE EDITION from that which appears in the MINING JOURNAL is published every Wednesday evening, containing "Notes and Hints on the Stock Markets," with Closing Prices. May be had on application.

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THE CREBOR DISTRICT.—Having our own independent agents we can furnish reliable information respecting mining properties in this neighbourhood on our usual terms.

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M. R. JOHN BATTERS, STOCK AND SHARE DEALER,
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Special information to Investors in Lead Mines, also in Swedish, Canadian, and other securities.

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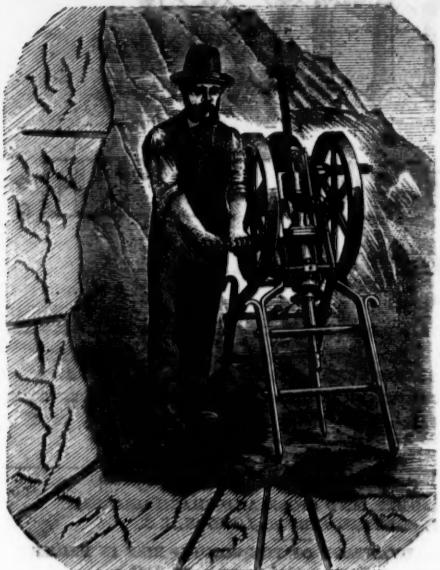
Buyers. Sellers.
Don Pedro 14s. 15s.
East Caradon 1½. 1½
East Lovell 2½. 3½
East Van 1½. 1½
Glenury 7s. 6d. 10s.
Herodsfoot 2½. 2½

Hultafall 1½. 2½
Leadhills 3½. 2½
Marke Valley 15s. 17s.

Leadhills 15s. 17s.
Parys Corporation 15s. 18s.
West Pevor 4s. 4½

Wheat Crebor 9s. 10s.

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HAND-POWER ROCK DRILL COMPANY, LIMITED.

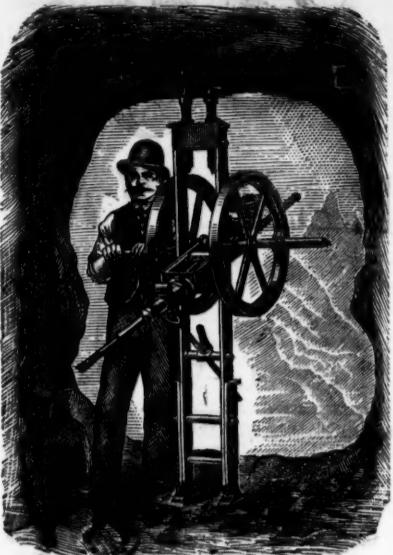
FOR THE

LATEST TESTIMONIALS AND
REPORTS OF PRACTICAL WORK

APPLY TO

T. B. JORDAN, SON, & MEIHE,
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LONDON, E.C.

TUNNELLING MACHINE.



JORDAN'S PATENT "DEAD-BLOW" HAND-POWER ROCK DRILL.

PATENT GOLD REDUCING MACHINERY AND GENERAL MINING PLANT.

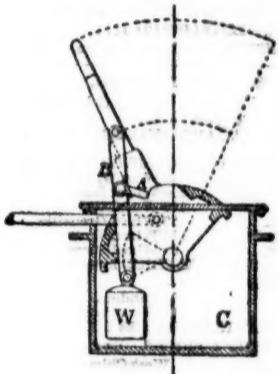
PRICES COMPLETE, £55 TO £70.

If purchasers find themselves unable to obtain the practical results claimed for this Drill, Jordan, Son, and Meihe are willing to undertake contracts at same price per fathom driven as paid for hand-labour, and, failing to obtain rapid advance and to prove the advantages of the machine, agree to take it back.

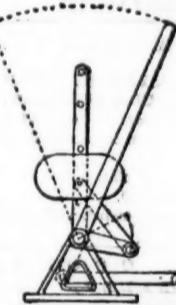
SWITCHES AND CROSSINGS,
FOR RAILWAYS AND TRAMWAYS, WITH PATENT LEVER BOXES.

Hartley's Patent Lever Box.

REVERSIBLE UNDERGROUND,



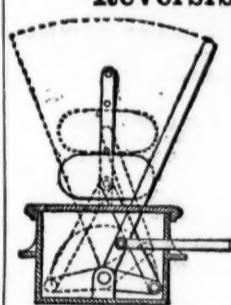
Can be set to work either way; by turning over the catch at A and reversing the lever, the weight W swings over to C, the catch preventing its return until again turned over. The reversing is effected with very little power, as the weight is raised but a few inches in the operation.

HARTLEY'S PATENT
LEVER BOX.

Specially designed for Colliery Workings, or where economy of space is an object. Is reversible, and can be locked either way, or dead-locked, so as not to work at all.

Hartley's Patent Locking and
Reversible Lever Boxes,

HALF UNDERGROUND,



Will set over both ways, can be locked so as to work on one side only, or the switches can be locked on either side, so as not to work at all. Takes up less room than any other, as the weight does not turn over; works equally well if full of water; can be supplied at the price of an ordinary lever box.

Tank Locomotives, Siding Stops, Wheels, Rails, Chairs, Spikes, Bolts,

AND EVERY DESCRIPTION OF PERMANENT WAY FITTINGS.

Iron and Steel Pit Cages, Wrought-iron Roofs, Headgears, Girders, Turntables, Patent Coal Tip, Boilers, Engines, Water Cranes.

HARTLEY and ARNOUX BROTHERS, Stoke-upon-Trent.

JOSEPH FIRTH AND SONS' NEW
PATENT BRICK-MAKING MACHINE

EMBRACES THE FOLLOWING ADVAN-

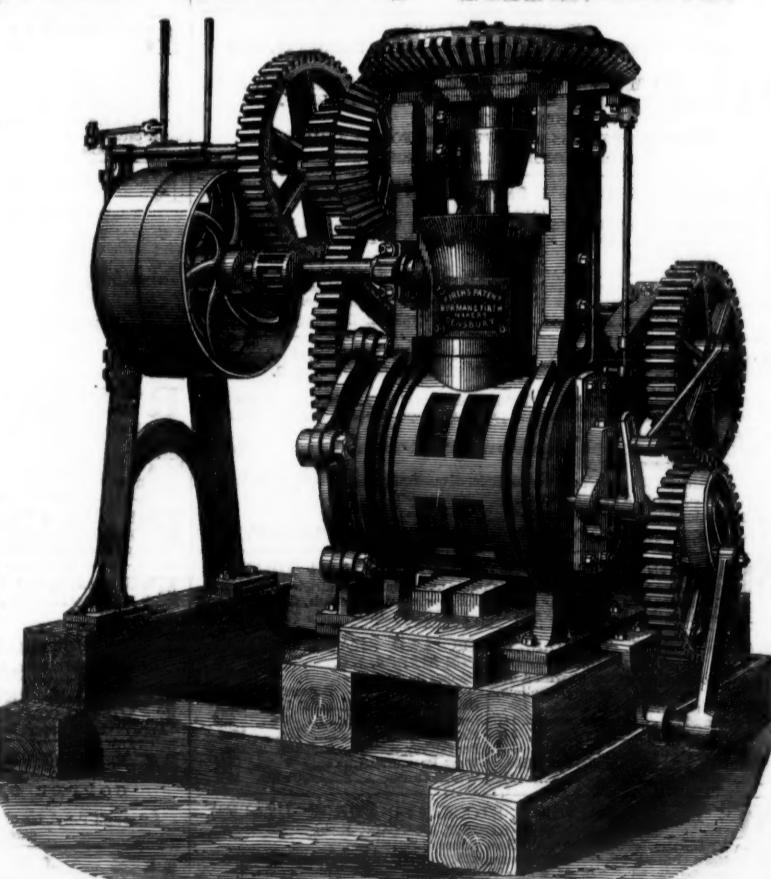
TAGES, VIZ.:-

SIMPLICITY, STRENGTH, AND
DURABILITY.COMPACTNESS AND EXCELLENCE OF
MECHANICAL ARRANGEMENTS.

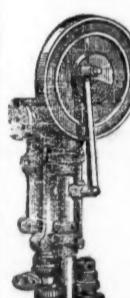
LARGE PRODUCING CAPABILITIES.

MODERATE COST.

It makes two bricks at once, and will make 12,000 to 14,000 Plastic Pressed Bricks per day, hard enough to go direct to the Kiln without drying; or it will make the bricks thoroughly plastic if required. For Works requiring a Machine at less cost the Machine is made to turn out one brick at once, and is capable of producing 8000 bricks per day.



The Machine can be seen at work daily at the Brickworks of the Patentees, Joseph Firth and Sons, Webster Hill, Dewsbury, as also their Patent Gas Kiln for Burning Bricks, which possesses the following amongst other advantages, viz.:—Economy in Fuel, Rapidity and Quality of Work, even Distribution of Heat, and Total Consumption of Smoke.

ALEX. WILSON & CO.,
VAUXHALL IRONWORKS,
LONDON, S.W.,MANUFACTURERS OF
THE VAUXHALL DONKEY PUMPS.
THE EXCELSIOR DIRECT-ACTING
PUMPS.Air Compressors.
Winding Engines.
HOISTING MACHINERY.

ILLUSTRATED AND PRICED CATALOGUES ON APPLICATION.

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GEOLGY.—In the Preface to the Student's Elements of Geology, by Sir CHARLES LYELL, price 9s., he says—"As it is impossible to enable the reader to recognise rocks and minerals at sight by aid of verbal descriptions or figures, he will do well to obtain well-arranged collections of specimens, such as may be procured from Mr. TENNANT (149, Strand), Teacher of Mineralogy at King's College, London." These collections are supplied on the following terms, in plain mahogany cabinets:—

100 specimens, in cabinet, with 3 trays.....	£ 2 2 0
200 " " " 5 " " " 5 5 0	5 5 0
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More extensive collections at 50 to 500 guineas each.

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Now ready, price 3s., by post 3s. 3d., Sixth Edition; Twentieth Thousand Copy, much improved, and enlarged to nearly 300 pages.

HOPTON'S CONVERSATIONS ON MINES, between Father and Son. The additions to the work are near 80 pages of useful information, principally questions and answers, with a view to assist applicants intending to pass an examination as mine managers, together with tables, rules of measurement, and other information on the moving and propelling power of ventilation, a subject which has caused so much controversy.

The following few testimonials, out of hundreds in Mr. Hopton's possession, speak to the value of the work:—

"The book cannot fail to be well received by all connected with collieries."—*Mining Journal*.

"The contents are really valuable to the miners of this country"—*Miners' Cons.*

"Such a work, well understood by miners, would do more to prevent colliery accidents than an army of inspectors."—*Colliery Guardian*.

London: MINING JOURNAL Office, 26 Fleet-street, E.C., and to be had of all booksellers.

Lectures on Practical Mining in Germany.

CLAUSTHAL MINING SCHOOL NOTES.—No. CXXXI.
BY J. CLARK JEFFERSON, A.R.S.M., W.R. SC.,
Mining Engineer, Wakefield.
(Formerly Student at the Royal Bergakademie, Clausthal.)
(The Author reserves the right of reproduction.)

The diagonal road is usually started off and packed on both sides as soon as the face of the coal has advanced sufficiently for the purpose. The main endings to the rise of the shaft are now useless as jig brows for the levels which have been crossed by the diagonal road, and could be allowed to crush in, were it not that they are useful for opening out the seam to the rise of the district served by the diagonal jig brow. The width of longwall board face, which is thus served by the diagonal jig brow will vary in maximum from 250 to 300 yards. Whilst the coal is thus being worked towards the right and left hand boundaries in two long faces, 250 to 300 yards wide, a second width of workings will be opened out to the rise by means of the three endings from the bottom. When the working faces have advanced so far from the pit bottom that the diagonal road reaches the upper end of the longwall face, a second diagonal road is started from the main level, or even before, should it appear advisable.

Although according to the above description no strait work is driven in the workings, except that absolutely necessary to provide roads through the safety pillar left round the bottom of the pits, and that the working away of the coal is commenced immediately on passing through the coal left as a safety pillar, still this is not the most rapid way of opening out the workings for a given daily output. In the above case the width of the working face increases in direct proportion to the advance from the pit bottom; but this advance is proportionately much slower in the case of ordinary opened out working places than in strait work. In the case we have above supposed, where the coal is worked away in three directions from the pit bottom, the width of the two side faces will be equal to their distance from the pit bottom, and the width of the working face to the rise will be equal to twice its distance from the pit bottom. The rate of advance, however, cannot well be increased above a given amount, depending on the greatest number of miners who can be conveniently distributed over a given width of face, so that the rate of increase of width of working face—or, what comes to the same thing, the rate of increase of the output—is limited, and that by the rate of advance of the working face. If we suppose that the quickest rate of advance of the working face is one-fourth of the rate of advance of strait work, then a single continuous face of working can be opened out on one side of the pit by means of driving strait work in the solid coal, as quickly as when the coal is opened out at once on all three sides in working faces. If, however, a second level is driven in the solid coal on the opposite side, a second working face can be opened out simultaneously on the opposite side, from which it follows that in the supposed case the output of a new pit, opened out by means of strait work driven on both sides, can be increased at double the rate of the output, when the working faces are opened out at once (after leaving the safety pillar) without driving any preliminary strait work. Hence it is that, although in many cases strait work can be altogether dispensed with longwall is employed, it seldom occurs that pits destined to be worked on the longwall method are opened out without first driving strait works for opening out the working faces.

The following description of longwall workings, which are opened out in this manner, refer to the Silkstone seam at the Sharlestone Colliery, near Wakefield. From the downcast shaft the main level, 7 yards in width, is driven on both sides of the shaft. The return air road, 4 yards in width, is driven parallel to and at 25 yards to the rise side of the main level. The two levels are thrilled every 24 yards. A third (covering off) level is driven at 33 yards to the rise side of the return air road, from which the bank faces are started. The thrills are continued through the safety pillar to the covering off level, and then as pack roads in the goaf. Every 180 to 200 yards of one of these pack roads is carried somewhat wider than the rest, and fitted up as a jig brow. At every 50 to 70 yards up these jig brows diagonal (cross) roads are driven to the right and left, crossing the pack roads (bank gates) continued from the covering off level. The diagonal cross roads (cross gates) are fitted up as tramroads, along which the corves are hurried by hand to the jig brows, where they are let down by means of a self-acting incline, the loaded corves going down and pulling up the empty ones. As soon as the diagonal cross gates meet with one of the bank gates the rails are pulled up in the bank gate on the dip side; the tram road in the bank to the rise side being connected with the tramroad in the diagonal cross gate, and the bank gate on the dip side of the cross gate is now allowed to crush in. As the first diagonal cross gate crosses the bank gates the thrills (of which the bank gates form the continuation) are closed with stoppings, and filled up with dirt. In some cases the bank gates, after being crossed by the diagonal cross gate, are not continued in the same line, but somewhat to one side, since the roof is less liable to break down where the bank gate to the rise starts off opposite to the solid pack wall than where two roads cross one another, and are each continued forward past the other. The diagonal cross gates are not carried through from one jig brow to the next, but terminate when first intersected by a diagonal cross gate from the adjoining jig brow. The diagonal cross gate to the dip, being useless for conveyance, is allowed to crush in. The thrills between the main level and the return air road, which afterwards form part of the jig brows, are started off at first in an inclined direction, or are driven somewhat curved, so that the train of corves lowered down the jig brow can be easily run round the curve into the main level. Where these jig brows cross the return air road an air crossing is usually put up over the jig brow. The ventilating air current travels along the main level, and splits itself at the bottom of the jig brows, up each of which a portion ascends to the bank faces, being prevented by brattice sheets from taking a shorter route along the diagonals. Sometimes the air current (more especially in the first years of working the mine, when the length of face and amount of goaf is not so great) traverses in one direction along the face—back towards the pit bottom.

When a considerable length of face has been opened out it is advisable to split the air current, and to let each split have a corresponding return into the main return air road, instead of passing the whole return air current over the whole length of bank face. For this reason one of the bank gates, next adjoining each of the jig brows more distant from the pit bottom, is kept open as a return air road from the bank faces, even after the diagonal cross gates which cross it have been allowed to crush in. The upcast shaft, which lies to the dip of the downcast shaft, is reached from the main return air road (which is to the rise of the downcast shaft) by means of an air crossing over the main level, in the vicinity of the pit bottom.

Perhaps the district in which longwall working has been longest uninterruptedly employed is that of Mansfeld, in Germany, where the copper slate which is worked is only from 12 in. to 20 in., and in some exceptional cases 24 in. thick. Of this thickness, however, only 8 in. to 4 in. contains sufficient mineral to be worth raising to the surface. Since, however, the smallest height in which a hewer can work will be about 20 in., this thickness is generally worked away. That portion, 8 in. to 4 in. thick, which contains sufficient copper to be worth smelting is sent to the surface, the rest being thrown behind in the goaf. As the roof and floor are otherwise good, the roof in settling down in the goaf cannot lower above a few inches, which represents the total amount of ripping in the roadways leading immediately to the working faces.

The old arrangement of working the Mansfeld copper slate was to drive a level right and left from the shaft bottom. Parallel levels were driven in the deposit 54 yards apart, and these were connected by inclined roads 110 yards apart, driven on the full rise of the de-

posit. The dip of the deposit varies between 5° and 6°. These levels and roads, which serve as wagon roads, are necessarily made considerably larger. The working face is generally set off from the low side, and in such a manner that it coincides with the principal cleavage plane of the deposit. The direction in which the working face advances is of considerable importance, in consequence of the local peculiarity of the miners of the district, which consists in lying on the left side when undercutting, instead of on the right side, as is usual with miners when working in such thin seams that the working places only allow of a lying position. Hence it is that the working faces advance generally in a direction inclined at 45° to the full rise, or on the right side of the full rise line. If the working face were arranged to advance at 45° to the full rise on the left side of the full rise, the miners lying on their left side would have their feet higher than their heads, which causing an extra flow of blood to the brain, might become dangerous to the miners.

As the working faces advanced diagonal tramroads were made through the goaf by packing walls, which were carefully built, and made tight to the roof; the stone obtained by ripping the roof to make the diagonal road of sufficient height is used for building the outside of the pack wall. Short props are sometimes built in the walls. These diagonal roads were driven from 25 to 36 metres apart, and furnished with tram rails. Since each hewer receives from 2 to 4 metres width of face, this would give too great a number of miners to be served by conveyance from one point in the face; hence branch roads are driven inclined from 40° to 45° to the diagonal roads, on both sides of the diagonal roads. The branch roads are not fitted up with rails, the copper slate being conveyed along them in sledges, attached by a short strap to the ankle or foot of the hewer, who crawls along the low roadway, having leg and shoulder boards strapped to the other leg and shoulder. As the branch roads from two adjoining diagonal roads meet fresh branch roads are started. The branch roads are seldom made higher than the height of the working places, the sledge being drawn along them by the hewer in a crawling posture. Where the branch roads join the diagonal roads the material is emptied into tram wagons, the diagonal roads being correspondingly larger. The levels are driven larger still, 5 ft. wide by as much as 9 ft. in height, the floor being pulled up, as well as the roof ripped down, to obtain the necessary height. At the face the copper slate is got by first undercutting and then hewing down the undermined portion. Short vertical props are used to keep up the roof in the vicinity of the face, though the goaf is generally well packed to within a few feet of the face.

FOREIGN WORK AND ENGLISH WAGES.

A large amount of interesting information in connection with the relations of capital and labour has been from time to time given by Mr. Thomas Brassey, M.P., and he has now issued another volume,* in which he discusses the condition and prospects of trade—a subject which at present is of enormous interest to everyone. He remarks that while multitude of idlers is probably greater than in any former generation; those who have any work to do live at a too high pressure in this age of inventions for abridging processes, shortening distances, and economising time. If our literature is condensed into articles in periodicals the number of topics to which our attention is invited is proportionately multiplied. In the present work his task has, he says, been mainly one of selection and compilation; he makes no pretension to original discovery, and considers it the chief merit of the volume that it is a record and a registry, not a work of fancy, imagination, and theory. Mr. Brassey has now endeavoured to ascertain whether any substantial grounds exist for the allegations so freely made that our trade is suffering from the extravagant cost of labour, and he has arrived at the conclusion that our industry has not yet been beaten on a large scale by foreign competition in any case in which that competition has been carried on under identical conditions, both as to natural resources and fiscal legislation. He considers that henceforth fewer opportunities will be found of realising large profits. Competition will be more severe. The telegraph and the improved facilities of communication have tended to equalise prices. A clear and regular profit of 7 or 8 per cent. must be accepted as a satisfactory return from commercial enterprise.

In these unprosperous times the demand for commodities does not increase in the same ratio as our means of production, and the commercial world is brought face to face with a problem of great difficulty in opening out new markets. A new demand for our goods must be created, and can only be created by cheapness and excellence of quality. The reputation of the country must be sustained, he might have said restored, by the diligence, the administrative skill, and the high sense of honour and integrity with which our commerce is conducted. The competition between labour and capital, between nation and nation, is intensified at a time like the present, when the commerce of the world is going through a process of contraction after a cycle of years of over-production. Loss of employment, reduction of wages on the Continent, the pressure of compulsory military service have provoked an uneasy feeling among the working classes, which in one country takes the form of Communism, in another of Socialism, and in Russia of Nihilism. In our own country envy is excited by the unequal distribution of wealth, and by the self-indulgence and luxury of the spoiled favourites of fortune. Here too there is ample scope for remodelling society. It is by "detective discussion" that fallacies will be exposed and the truth established. Referring to the general depression of trade, he maintains that the falling away is not observable in every trade, and the depression has of late been far more marked in our home consumption than in our foreign trade. The export of British and Irish produce in 1872 was 256,257,347, declared value, and in 1878 it was only 192,814,111, showing a falling off of 63,443,236, or almost exactly 25 per cent. Mr. Brassey, however, supports Lord Beaconsfield's explanation that the change is due to difference of price rather than to difference of quantity. Referring to the figures given, the Prime Minister stated that the exports had fallen from 255,000,000 in 1873 to 198,000,000 in 1877, but if the products of 1877 had been valued at the same rate as the products of 1873 the difference between the total amounts would have been reduced to less than 1,000,000.

The fall in prices, the cotton trade, and the iron trade have each a chapter devoted to them, and Mr. Brassey points out with regard to France, for example, that when railways were introduced into that country in 1842 its resources were so limited that it became necessary for the English capitalists who had undertaken the construction of the railway from Paris to Rouen to establish works at Sotteville to construct the locomotives and other rolling stock. English materials were used and English workmen were almost exclusively employed. The French labourers employed by the contractors used wooden spades and huge barrows of antiquated shape. The iron shovel and pickaxe and an improved form of barrow were introduced by the English navvies. The agricultural interest, foreign competition, the mercantile marine, efficiency of English and foreign labour, trades unions, co-operation, and various other questions are in turn considered, and thus a volume of over 400 pages is made up, the reading and study of which will be equally beneficial to employers, employed, and to that portion of the general public who may be regarded as not exactly belonging to either of these classes, and the work is as interesting as it is useful.

SYNOPTICAL INVESTMENT TABLES.—It frequently happens that when an investor is offered several securities at various prices, and bearing various rates of interest, he is at a loss to know which will yield him the largest amount of annual interest; and to render unnecessary the tedious calculations which would have to be made to determine the question, Mr. ALEX. M. DUFF, of Edinburgh, has prepared a complete series of Synoptical Investment Tables (Edinburgh: Bell and Bradfute. London: C. and E. Layton), constructed on the basis of actual return per cent. on actual outlay, which is graduated upwards from 1 to 10 per cent., and upwards from 10 to 12 per cent. Suppose, for example, a purchaser be offered a security yield-

ing 4 per cent. on the par value at 65, the tables will show him at a glance that the investment will return him about 6½ per cent. per annum as interest for his money, and that a 3½ per cent. security at 58 will yield him more than ½ per cent. less. The tables also comprise dividends from ½ to 30 per cent. per annum, and there are tables showing the per cent. on purchase prices at various numbers of years, the value of the decimals of 1, the interest on 100 per day at different rates per cent., the interest on 1, per day at different rates, and the method of calculating interest on accounts current. The tables are very compact, and will be found of great utility to those for whom they are intended.

MANUFACTURE OF PHOSPHORUS

In the manufacture of phosphorus by the dry way Mr. J. P. SERVE, of Givres, France, employs the well-known reaction of silica on phosphates, but he prepares the materials in a special manner, which much facilitates the reaction and the separation of the phosphorus. The three principal operations are the reduction of the phosphates to fine powder, the intimate admixture of these phosphates with silica and charcoal, likewise reduced to powder, and the agglomeration of this mixture into the form of blocks or bricks. He can employ any phosphates of lime; the richer they are in tribasic phosphates of lime the greater is the product; but these phosphates are generally all good—that is to say, the operation can be effected with all whether they be phosphates of lime, bones, fossil phosphates of lime, coprolites, phosphorites, apatites, or others, and even phosphates of baryta, magnesia, iron, and others.

If fossil or mineral phosphates be used it is well to select those which are as free as possible from lime, alumina, or magnesia uncombined with the phosphorus. The phosphate is pulverised very finely, the finer it is the better, and silica also very finely pulverised is added to it. This silica can be obtained from any convenient source, and like the phosphate the finer it is the better. Clay might be used if very silicious; it would be even better, because clays being nearly all of multiple silicates therefore the silicate becomes better formed, and the dross or refuse is more fluid and flows more readily. The quantity of silica is not fixed, but the operation generally works well if a weight of silica equal to the weight of the tribasic phosphate which the phosphate contains be used; the proportion will vary according to the purity of the materials employed. To this mixture is added solid charcoal, also pulverised, in the proportion of the equivalent of the phosphoric acid to be reduced plus a little excess, that is to say, to enable the oxygen which will be displaced from the phosphoric acid to combine with the carbon and form oxide of carbon or at least carbonic acid. The materials are mixed and worked up with a sufficient quantity of water, and then made into blocks or bricks of any desired form, hollow or not; the blocks are then dried and may be burnt and cooled in a close vessel if they are not employed hot, so as to prevent the carbon being burnt before the chemical reaction which decomposes the phosphate can take place.

These blocks are introduced either on to the bed of a furnace, reverberatory or not, or into a cupola furnace, or into a blast furnace like those employed in metallurgy. The charging of the blast furnace is effected, as in metallurgy, by having when required a double shutter or closing arrangement at the mouth to prevent loss, and the furnace works in the same manner. The only difference is that the products to be collected are in the state of vapours, gases, or small crystals very minute. There are numerous ways in which they can be collected. That which is preferred consists in directing the products of combustion and the phosphorus in the state of vapour into a large descending column cooled by a shower of water, which condenses the phosphorus and causes it to fall into a trough of water; the gases thus deprived of phosphorus and composed chiefly of oxide of carbon may be utilised for producing heat. As it is desirable that the blocks should crumble as little as possible they may be made more solid by mixing with them a salt or acid. Soluble glass (silicate of soda and of potassa) gives great solidity to the blocks, and adds very divided silica, which facilitates the action upon the phosphate. Solidity may also be given to the blocks by adding to them pitches or tar; the blocks are then carbonised or not, and this is a mode of introducing carbon into the blocks, or a suitable mucilage or sugary materials may be employed.

WELDLESS CHAINS AND CABLES.

Hitherto chains and cables have been made of iron generally from round bars or rods, and bent into shape and each link welded, but Mr. W. DEAKIN, of Birmingham, has invented a process which consists firstly in making chains and cables from steel, homogeneous, or metals such as Bessemer, Siemens, or similar material; and, secondly, in constructing the said chains and cables in such a manner that the operation of welding is entirely avoided and dispensed with, thereby producing a perfectly weldless chain or cable from end to end.

This may be effected in various ways, as for instance, he can take a piece of a bar of the said metal formed to any convenient shape and design suitable to the multifarious and numerous purposes for which chains or cables are required, and which may be bent into form by any suitable appliances, and manipulated by such means as hammers, rolls, shears, cutters, punches, presses, stamps, or dies, or their equivalents, and actuated by steam, hydraulic, or other convenient power, and by such means to admit of one link being lapped, doubled, and looped through another and so on to the completion of the chain without welding of any kind. Or he may roll such metal into plates, plain or indented, of the desired thickness, and stamp or cut out blanks therefrom of the required shape and dimensions for forming such weldless links, to be afterwards made into a chain of cable according to his invention; or he may cast such links into the suitable form required for the purpose, and subject such links to the operation of hammering, stamping, or pressing into the finished form, the said process contributing very materially to the solidifying and improving of the metal under operation.

Thus it will be seen that by his invention he produces solid weldless chains and cables from steel and homogeneous metals, whereby increased strength and greater durability are obtained and with decreased weight. In manufacturing chains and cables according to his invention he not only obtains mathematical accuracy and improved quality in the process of their formation, but being made almost entirely from tools and mechanical appliances, he is enabled to employ unskilled labour, and thus dispense with the skilled hand labour that is indispensable in manufacturing iron chains by welding each link separately, there being also considerable economy effected in the consumption of fuel; thus it will be seen that a great saving in the cost of manufacture is effected.

REMOVING INCRUSTATION FROM STEAM BOILERS.—With a view to remove the incrustation from the tubes of locomotive, marine, and other steam generators, Mr. HERMANN ESSER, of Carlsruhe, proposes to cause the tubes to revolve in contact with a number of comparatively small hard bodies. For the purposes of the invention pebbles are suitable. To effect the removal expeditiously the tube is caused to revolve rapidly, and a receptacle containing the pebbles is traversed to and fro along the tube, the pebbles being pressed into contact with the tube, and being kept wet by means of a stream of water. In an apparatus designed for the purpose a bed similar in form to a lathe bed is provided with fast and following headstocks. The spindle is provided with a scroll-chuck or with a suitable chuck for gripping the tube. For convenience the said spindle is held by means of a detent and wheel at the times when the tube has to be inserted or removed. The following headstock is fitted with a spindle which is free to revolve in bearings, and is provided with a conical end to enter the tube, and with a tail-pin which takes the thrust. A sliding carriage carries a perforated cradle which holds the pebbles. The said cradle is provided with a hinged or removable cover which when in position is pressed towards the tube by means of a spring or weight. The parts are so formed and arranged as that the tube is entirely surrounded by pebbles, which are pressed against the tube. A water pipe or cock is connected by means of an indiarubber tube with a water supply pipe, or is otherwise so connected as that the movement of the said

* Being Notes on a Course of Lectures on Mining, delivered by Herr Bergarth Dr. VON GRODNOCK, Director of the Royal Bergakademie, Clausthal, The Harz, North Germany.

** "Foreign Work and English Wages, considered with reference to the Depression of Trade." By THOMAS BRASSEY, M.P. London: Longmans, Green, and Co.

carriage will not interrupt the water supply. The said carriage is traversed to and fro during the rotation of the tube, and the abrading action of the pebbles removes the incrustation, and the particles removed are washed away by the stream of water. A receptacle to receive the water and mud is formed below the said cradle, and the said receptacle communicates by means of a pipe or spout with a gutter, which runs along the back of the bed and conveys away the water and matters removed from the tube.

FOREIGN MINING AND METALLURGY.

There is considerable firmness in the Belgian iron trade. Some important orders have been received by the rolling-mills, especially on foreign account. At Liège merchants' iron has shown an advance of 6s. to 8s. per ton; at Charleroi the advance has been very decided at 8s. per ton. The John Cockerill Company, obeying the spirit of the times, is extending its appliances for the production of steel. Fine plates and plates for boilers have been in good demand in Belgium. Russia and Holland have been valuable clients. In consequence of the rise in English pig an advance has taken place in Luxembourg pig.

The imports of iron into France for the first seven months of this year exhibit an increase of 13,600 tons, or 9½ per cent., as compared with the corresponding period of 1878. During the first seven months of this year the exports increased 6500 tons, or more than 6 per cent., as compared with 1878. The imports of minerals into France in the first seven months of this year presented an increase of 48,000 tons, or 9½ per cent., as compared with the corresponding period of 1878. The exports of minerals from France in the first seven months of this year presented a decline of 4700 tons, or 10½ per cent., as compared with the corresponding period of 1878. The monthly meeting of the two metallurgical groups of the Nord has just taken place at Valenciennes. A good current of affairs and more satisfactory prices were reported. Upon the whole, the iron trade of the north of France may be said to be very firm. The next reunion will be held in Naubenge.

A few miscellaneous items. The administration of the Upper Italy Railway Company has just entrusted the construction of five locomotives to the Pietrasa establishment at Naples. Representatives of the foundries and forges of Alsace, South Germany, and Hesse Nassau had a meeting a few days since at Mannheim. Having regard to the advance in raw materials, this meeting decided that the price of all castings should be advanced 20s. per ton as from Sept. 15. The works of Bavaria and Wurtemburg did not send delegates, but they intimated their assent in writing. Explorations on the geological formation of Brazil are being continued, and it becomes evident that, except in the neighbourhood of Rio de Janeiro, the coast line of Brazil, contains carboniferous beds which promise in an early future to be a source of great profit to the Brazilian empire. The works of a canal from St. Petersburg to Cronstadt are being pushed forward with much activity, and Admiral Poisett, who directs them, has given an assurance to the Russian Government that by the summer of 1881 ships of an average burthen will be enabled to reach St. Petersburg.

The Belgian Metallurgical and Colliery Company has just issued its report for the year ending June 30, 1879. The report is a discouraging document, a loss of 161,368l. being indicated, which would be increased to 257,585l. if the Vierney and Asturias collieries were sold. It is hoped, however, that the unfortunate sale will be avoided, and that it will be found possible for the company to discharge the debt which it owes to the Bank of Belgium by some other means. The orders on hand at the commencement of September, 1879 were larger than at the corresponding date of 1878, and this induces hope of better financial results in the current financial year than those which were realised in 1878-9. The actual loss attending the industrial operations of the company in 1878-9 appears to have been 12,056l. As regards the current features of the Belgian coal trade, that trade may be said to be sharing the increased activity which characterises the Belgian iron trade. As regards any improvement in prices Belgian coalowners have still, however, to wait a little longer. The industrial coal of the Liege group has been purchased freely in the North of France, where activity has prevailed of late. As regards domestic qualities of coal, they are of course absorbed in Belgium itself, and supplies are being laid in for the winter. Stocks of coal are not very heavy at present in Belgium.

THE MINERAL WEALTH OF UTAH.

For some time past increased attention has again been directed to the mineral wealth of Utah, and it was mentioned in last week's *Mining Journal* that Professor J. S. Newberry, of Columbia College School of Mines, New York, has been spending his vacation in Utah and Nevada, in order to be the better able to communicate additional practical information to the members of his class. As the professor's reputation is very high in every part of the Union the miners of Utah and Nevada naturally availed themselves of the opportunity to interview him as to his opinions of their mines, and his views with regard to Parley's Park, Little Cottonwood, and Bingham Canyon have thus been obtained, and published in the Salt Lake Tribune. The Tintic, Frisco, and other prominent districts will be subsequently noticed, and as he intends to visit Colorado before his return to New York something thence may also be expected. The professor stated that his special object in visiting the leading mining districts is to ascertain the structure and nature of the deposits, and the true value and product of each. In addition to his desire to describe to his pupils at Columbia College the characteristics of the more important mines, he has long felt that it is very important that in the financial centres of the country there should be a greater degree of accurate information concerning the mineral resources of the Western country, in order that investments may be made as intelligently as possible, and that the great mining industry of the country shall be put on a legitimate basis, and cease to be purely speculative; in other words, that those who own good mines, and those who seek investments in mining properties, may be protected as far as is possible from the operations of sharpers, who are not only by their baseless schemes leading people to make unfortunate investments but are bringing discredit upon all legitimate mining enterprises.

Parley's Park contains the great Ontario Silver Mine, and a number of others in process of development. His visit has favourably impressed him. The mines there are located on true fissure veins, of which there were several systems, and give promise of greater regularity and permanence than those of most other mining districts. The Ontario is a fissure vein, in quartzite, of good size, and carrying ore of high grade. The mine has been worked with great skill from the first, and may now be said to be a model in the system under which it has been worked, as well as in the regularity and richness of the deposit. All the improvements are of the most substantial and permanent character; its managers are evidently men of superior ability, and altogether it stands as one of the most interesting and satisfactory mines on the continent. The workings of the Ontario have as yet reached only 500 ft., although the vein has been opened at a depth of 600 ft. On the lowest level the vein shows even better than at the surface, and everything indicates that it will continue to be as productive to the depth of 2500 or 3000 ft. as it has been to 500. The Ontario vein runs nearly east and west, and development work is progressing rapidly on several of the claims on its eastern and western extension.

Little can yet be said of the future of the mines now being opened on the Ontario vein, as, although the ledge may be distinctly traced, its richness has not yet been demonstrated. They are, however, vigorously developing in the Empire on the west, and in Parley's Park, Lady of the Lake, and Miller Tunnel on the east. The next claim west of the Ontario, the Last Chance, has been pretty well opened by the levels of the Ontario, which have run into it. These show fine bodies of ore, and indicate that it will be a no less productive mining ground than the Ontario. Another group of veins in the vicinity of the Ontario has a direction oblique to the vein of that mine running north-west and south-east, and on these the Utah and White Pine mines are being opened with good indications. Still another series, running nearly north and south, is represented by the

Jones' or the Bonanza Mine, opened 200 ft., showing persistent, regular deposits, less in dimensions than that of the Ontario, but carrying ore of great richness. On the whole, the promise of the Park district is exceedingly flattering. It is well supplied with wood and water, and lies in such proximity to the coal mines of Coalville that it can always be sure of an abundance of cheap fuel.

The Little Cottonwood district appears to be far more speculative than the Parley's Park, the character of the deposits being totally different. In Parley's Park they are true fissure veins, which carry comparatively little galena, and the ore is to be treated by milling rather than by smelting. In the Cottonwood, on the contrary, which includes the famous Emma, the Flagstaff, and other formerly noted mines, the ore occurs in chambers in limestone, was originally mainly galena, but is now changed to carbonate of lead. The nature of these mineral deposits is similar in all respects to those of Eureka, Nevada. The great ore chambers formerly discovered here have been for the most part emptied of their contents. It is by no means certain, however, nor even probable, that all the valuable ore deposits are yet known, and there is encouragement for much and long-continued exploration in the extensive belt of country which is known to be metalliferous.

In Bingham canyon the general formation is quite different from that on the other side of the valley. The principal mining belt is very broad, and crosses the mountains in a north-west and south-east direction. There are here a considerable number of veins, and these vary somewhat in character among themselves. They are, however, fissure veins, sometimes crossing and sometimes conforming somewhat to the bedding of the country rock. They are of large dimensions, and variable in their thickness at different places. On the whole, the deposits are continuous, and will be permanent, and promise long life to the mining activity of the district. The silver-lead ores of Bingham have long been known and extensively worked.

The utilisation of the gold ores is the result of a very recent discovery of their value, but these now promise to contribute to the mineowners a larger amount of wealth than they have derived from the smelting of ores. It is even doubtful whether they will not furnish us a large quantity of gold for some years to come, as the famous gold mines of the Black Hills. The gold ores of the Bingham Mines are low grade, running from \$6 to \$30 per ton, but they are exceedingly soft, and can be mined and milled more cheaply than any gold ores known. The quantity of material to be treated is enormous. In one of the Bingham mines the mass of visible gold-bearing ore opened by the drifts, which were made for the purpose of reaching the lead ore, is at least 30 ft. thick, by 500 ft. in length, and rises in height 350 ft. above the water level. This mass, as tested by careful sampling and assaying, carries an average of \$13·50 in gold, and \$3 to \$9 in silver. As it can be mined for less than \$2 per ton, and milled, where water is obtainable, for an equal sum, it will be seen that the amount of gold available in these deposits is really enormous. It will probably be necessary to bring a large part of the gold ore down to the valley for treatment, but in that event the expenses will be such as to leave a large margin of profit to the mineowners. Hence it will not be surprising if, as has been suggested, the gold production of Bingham should overshadow that of silver. It should be said, however, that below the water level the gold will, probably, be found in unchanged pyrites, and it is doubtful whether this can be profitably worked.

Registration of New Companies.

The following joint-stock companies have been duly registered:—

THE "DALBEATTIE" STEAMSHIP COMPANY (Limited).—Capital 18,240l., in shares of 10l. To acquire by purchase or otherwise the steamship Dalbeattie, now building, and to carry on the business of steamship owners. The subscribers are—A. French, 1, Islington-square, 2; A. H. Spence, York, 2; J. J. Smith, Middlesborough, 1; A. J. Dorman, Norton, 1; J. C. Simpson, Saltburn-by-the-Sea, 1; H. Hawdon, Middlesborough, 1; J. Featherstone, Coatham, 1.

THE BRITISH WHITE LEAD COMPANY (Limited).—Capital 70,000l., in shares of 10l. To acquire the works, plant, &c., to situate at Bermondsey, and to carry on the business of white lead manufacturers. The subscribers are—L. B. Garrett, 195, Maida Vale, 200; W. Humphris, 44, Maida Vale, 100; W. H. Humphris, 44, Maida Vale, 100; C. V. Jones, 16, Blackfriars-road, 100; F. A. V. le Lubez, 68, Grove-road, 50; G. E. Williams, East Dulwich, 50; W. V. Wilson, Mile End, 50.

AMERICAN DIRECT SUPPLY ASSOCIATION (Limited).—Capital 20,000l., in shares of 10l. The importation of all kinds of provisions, groceries, wines, spirits, &c., buying, manufacturing, and selling same by wholesale and retail. The subscribers are—J. W. Temple, 34, Leadenhall-street, 675; J. Pard, 52, Gracechurch-street, 100; W. S. Savill, 34, Leadenhall-street, 200; D. Clark, 4, Billiter-street, 5; F. R. Fisher, 4, Billiter-street, 5; A. Dallas, Arbroath, 5; H. A. Lane, Highbury, 10.

THE BRITISH EMPIRE NEWSPAPER COMPANY (Limited).—Capital 20,000l., in shares of 2l. To purchase the British Empire newspaper, along with the goodwill, &c., and to carry on the business of newspaper publishers and printers. The subscribers are—F. Blood, Birmingham, 5; J. Getting, Birmingham, 5; H. East, Birmingham, 1; D. Marcus, Birmingham, 1; R. C. Marsh, Birmingham, 2; H. Guest, Birmingham, 1; S. C. Lister, Skipton, 100; J. M. Hyde, 77, Cambridge Gardens, 25; R. R. Hamilton, East Sheen, 25; J. Edgcomb, 47, Fleet-street, 25; H. K. Jackson, Chiswell-street, 25; H. S. Ross, East Sheen, 25; J. T. Edgcomb, Temple, 25.

THE MERCANTILE AND EXCHANGE CLUB (Limited).—Capital 50,000l., in shares of 1l. To carry on the business of a club and a club-house for the use of members. The subscribers (who take one share each) are—R. W. Swete, 34, Poultry; E. W. Faunt, Lewisham; L. B. T. Swete, Threadneedle-street; F. Takeman, 1 Royal Exchange Buildings; R. A. J. Swete, Lee; J. Shenton, 27, Leadenhall-street; A. J. Pentreath, 19, Bircham-lane.

BRYN GLAS SILVER-LEAD MINING COMPANY (Limited).—Capital 25,000l., in shares of 1l. To adopt and carry into effect two agreements made between P. Oliver and V. Campbell and V. Campbell and J. Star, on behalf of the company, for the purchase of the lease of certain mining property situate in the parish of Llanbadarnfawr, Cardiganshire, with the premises, buildings, plant, machinery, stock-in-trade, effects, &c. To purchase or otherwise acquire any other mines or mineral properties, lands, &c., and to carry on the business of raising, working, winning, and smelting ores and other minerals, for the purposes of sale and gain. The acquisition of any letters patents or patent rights. The subscribers (who take one share each) are—J. S. Houston, 25, Crosby Hall Chambers, stockbroker; A. P. Barr, 16, New Broad-street, accountant; T. Pauil, Dalton, engineer; E. Jones, 85, Mildmay Grove, sharedealer; G. E. Hooke, 25, Bishopsgate-street Within, sharedealer; W. Marlborough, 25, Bishopsgate-street Within, sharedealer; J. Purcell, Hackney, mining engineer. The directors shall not be more than seven or less than three. The qualification 50 shares. The first directors shall be Dr. H. Campbell, T. Lane, J. Stenson, and J. Walker. Remuneration 200l., to be divided, and when 10 per cent. is declared upon the paid-up capital a further sum of 300l. shall be divided amongst the directors.

THE HASTINGS AND ST. LEONARDS COFFEE PALACE AND HOTEL COMPANY (Limited).—Capital 8000l., in shares of 1l. To erect coffee palaces and hotels, and to carry on the business of coffee-house proprietors and hotel keepers, but no wines or spirituous liquors are to be sold or consumed. The subscribers are—Forbes E. Winslow, St. Leonards, 25; J. W. Tottenham, St. Leonards, 100; C. J. Womersley, Hastings, 50; T. Noakes, Hastings, 50; E. H. Langley, Hastings, 30; A. D. Womersley, Hastings, 50; W. Phillips, Hastings, 30; W. Mackey, Hastings, 20; H. Osborne, Hastings, 10; E. F. Moore, Hastings, 10; J. Hermitage, Hastings, 25; H. Goldsworthy, Hastings, 5.

NEW TEMPLE NORMANTON COAL AND COKE COMPANY (Limited).—Capital 10,000l., in shares of 50l. The purchasing or otherwise acquiring of coal mines, iron mines, or any other mines or minerals, and particularly certain lands, buildings, hereditaments, coal and iron-stone mines situate at Temple, or elsewhere in Derbyshire, with the

business now being carried on near Chesterfield as coal and ironmasters, together with all the stock-in-trade, plant, machinery, contracts, &c., thereunto appertaining, for the purpose of carrying on and developing such businesses. The subscribers are—P. W. Bowne, Derby, lime merchant, 10; J. Porter, Weston, farmer, 10; J. Caudwell, Alfreton, miller, 20; S. Sedgwick, Codnor Park, engineer, 10; W. Barton, Alfreton, bailiff, 10; W. Caudwell, Rowsley, miller, 20; C. Caudwell, Rowsley, miller, 20; N. Millers, Newton, colliery owner, 10. The directors shall be Messrs. Bowne (chairman), Porter, Sedgwick, Barton, Mellers, J. and W. Caudwell, the qualification being fixed at 10 shares. Remuneration of the directors to be settled by the company in general meeting.

COALGREEN SLATE COMPANY (Limited).—Capital 10,000l., in shares of 10l. To purchase, or otherwise acquire, slate quarries, lands, premises, &c., situated in the county Cork, and the business connected therewith, for the purpose of carrying on such business. The subscribers (who take one share each) are—E. Law, Birkenhead; W. H. Law, New Ferry; J. Law, Liverpool; R. Evans, Liverpool; C. Law, Liverpool; H. J. Hickie, Liverpool; J. H. Sungun, Cork. Messrs. E. Law, H. J. Hickie, E. Roberts, and W. N. Brough are to be the first directors, the qualification being 25 shares.

THE WILD DUCK, OR SPORTSMAN'S ARMS.

"I'm late again to-day," says Old Tom. "Never mind," says Jan Temby, "there's plenty of denner left for thee, but how art a so late, old fellow?" "I'll tell ee all about it so soon as I've finished my bit of denner," says Old Tom. "Take time for'n," says Jan, "and here's a fine glass of ale for thee to wash'down." "Ah," says Old Tom, "that glass of ale wor prime stuff ("home-brewed," says Cousin Will), and would make a teetotaller's mouth water. Well, comrades, now I've finished I'll tell ee how I wor so late. Our boy, Jan, the other night heer'd Capn Dick — reading the *Mining Journal*, and for days afterwards a couldn't tell about anything else; so as I was coming up here to-day I thought a would not be much out of my way to go to Capn Dick's, and ax'n to be so kind as to lend the *Journal* for a day or two, so here a ess, comrades, and I vote that Cousin Will shall read all the wonderful accounts about mining and everything else all over the world. Cousin Will then read the accounts of the great mittens at Falmouth, and how it was explained that if the underlie of a lode was north, and the underlie of a cross-course wor east, the "heave" would be to the right hand; then he went on about all sorts of powder, jiggling, tin slimes, and stone-breaking machines. Then there wor an account of all the tin rose in the Camborne, Illogan, and Redruth mines, and that one-sixth of it went through Red River to Gwithian Sands. Then there wor accounts of all the furrin mines, and a thousand other things that poor working miners never heerd of before." "Well," says Uncle Henny, we must thank Cousin Will for reading such wonderful accounts." "Iss," says Jan Temby, "and Old Tom for bringing the *Mining Journal*." "I wonder," says Uncle Henny, "what the *Journal* would cost a week?" "Sixpence," says Cousin Will. "Then I propose," says Uncle Henny, "that from this day, and so long as our mittens exist, that we will take the *Mining Journal*." "I second the motion," says Jan Temby. "We all second it, and agree to it," says Old Tom, "but I should like to say a word or two about 'heaves,' for everything is plain after a ess found out. Now, suppose I'm driving a end east on the coose of a lode the underlie is north. I come to a cross-course, and the underlay of it is east. The lode is cut off, and according to the account in the *Journal* if I drive south I shall find the lode again, as it is a 'right-hand heave.' Well, now, comrades, I'll suppose again. I'm driving west on the same lode, and come to the same cross-course. I drive south, and find the lode, then 'tis a 'left-hand heave.' Now, I want to know how the same heave can be both right-hand and left-hand." "You must ask the learned writer in the *Mining Journal*," says Jan Temby. "Oh, iss," says Old Tom; "he'll tell when the heave took place, and how, and said we must do so and so to find the lode again." "I'd rather trust to my experience," says Uncle Henny, "for a keen-eyed old tributer can see strings and signs in lodes and cross-courses—sure guides, unknown to anybody else—that will lead him to the lode again when it has been heaved by a cross-course, but he don't pretend to know what caused the heave, but the same or some larned man said that cracks or splits in the rocks wor filled up, and that was the way the lodes wor made." "That may be true enuff," says Jan Temby, "but I wonder how long it will take to fill all the old gunnies again in all the old bals, because if the filling up come from below, why don't it come again and fill up the cracks and splits made by old tributers." "I think," says Jan Jewill, "that an old gunnies will never be filled again except with deads, but if the deads turn again to tin and copper we shall have new lodes in old bals." "What's your opinion, Uncle Henny," says Jemmy Dowa, "of jiggling tin slimes?" "My opinion is," says Uncle Henny, "that it will send more tin to Gwithian, and I have no doubt in the world that since jiggling machinery was first used tens of thousands of pounds' worth of copper ore was jiggled away in the skimpings. The fine ore—the light ore—which is the richest, is sure to go off first, and very often the more you jig the more you lose, for you lose all the light ore and save all the poor ore and heavy waste. This will be the case until all ore is carefully separated in the stone, and sorted, and an end put to the plan of stamping good, bad, and indifferent stuff to slime, because, as I said before, the light rich ore—the floren—which is the cream of the ore, will all go off in the water, so that it is plain to me that Old Tom's plan of dry dressing is the only remedy for stopping the tin going to Gwithian." "You may be sure of it," says Old Tom, "for none but mazed men would go on smashing all sorts of trade into mountains of slime, for in spite of all the can do in jiggling or buddling, or anything else, in dressing the slimes, the best and richest of the ore will go off in the water to Gwithian Sands or somewhere else. Now, comrades, if you have a ton of prills and a ton of dredge, and you stamp the 2 tons into fine slime, do you mean to tell me that by jiggling, or buddling, or framing, or by every plan used in dressing slimes, that you could get out the value of the ton of prills again? They never could; so here is something for the larned men to think of." "And the capn dressers," says Jan Jewill. "I tell ee, Jan," says Old Tom, "the capn dressers ought to be sent to night school or somewhere else to larn their business, for capn 'in dressers' don't know half so much as the old dressers did 70 years ago, or the would stop the tin going down Red River." "Well, men," says Jemmy Dowa, "I've been thinking since I heer'd Cousin Will read the wonderful accounts in the *Mining Journal*, how it is possible for them to get all the information." "Why, my dear Jemmy," says Uncle Henny, "they have gentlemen travelling for them in every part of the world, and able to speak every known language. That's the way." "What a lot it must cost," says Jemmy. "You seem to forget, Uncle Henny," says Cousin Will, "that the *Mining Journal* for many years has given handsome prizes for improvements in mining, machinery, dressing, and all connected therewith, so that every miner at home and abroad is bound to support such a kind and able friend." "That's very true," says Old Tom, "and I don't doubt but when he is told all about my plan of dry dressing he will give a prize for it, and my boy Jan shall write and tell us all about'n." —From Cousin Jack's *Unpublished MSS.*

ELECTRIC LIGHTING APPARATUS.—The object of the invention of Mr. R. COMPTON, of Mansion House Buildings, is to facilitate the control of the advance of the electrode as it wastes under the electric action. The carbon or other electrode is of disc or cylindrical form, and it is caused to rotate either by the electric current, or by clockwork, or other suitable mechanism. The rotation of the electrode is for the purpose of presenting fresh surfaces for action. The rotating electrode is supported in such a manner as to allow of its axis being moved towards the light as the electrode diminishes in size. A roller, pulley or other contrivance is kept in contact with the periphery of the rotating electrode

approaches the centre of the electrode. Electrodes controlled as indicated may be arranged to operate with other electrodes similarly or otherwise controlled, or with stationary electrodes.

INVESTMENT NOTES.

It may almost be safely said that the long term of depression is now passing away. The future looks brighter in many directions, notably in that great branch of British commerce—the iron trade. Copper, tin, and lead are also better than last week, and there is no apparent cause whatever to check the upward movement. Many lead mines unable even to meet costs will now be able to make profits, while those worked by adit levels, without expensive steam pumping machinery, &c., will especially benefit. Such mines are to be found in the D'Ershy Mountain district. Started in the midst of unparalleled dullness of mining and every other trade, profits may soon be realised by the enterprise of those who predicted the advent of a favourable turn in business. A good improvement may shortly be anticipated at D'Ershy Mountain, while at D'Ershy Consols great interest is manifested in the cutting of the Cobblers and other ledges. There will be a rush for the shares, and investors will regret they did not buy before the rise set in. Then, again, the Hafna Mine (in the same district), owned by the Mineral Corporation of Great Britain, will ere long be returning profits. So that the entire neighbourhood will, it is believed, attract considerable attention. The mine which will compare favourably with either of these promising mines is North D'Ershy Mountain, also worked entirely by adit levels, with a plentiful supply of water for all purposes. It may be deemed advisable to sometimes employ a small engine, but the cost will be trivial. No property can be more cheaply worked, as it possesses advantages which might well be the envy of mine managers—actually adjoining the main turnpike road, and within a few hundred yards of the quay on the River Conway at Trefriw, where all the lead ore and materials can be brought.

A visit to the picturesque spot will convince anyone of the value of North D'Ershy Mountain. There has been a good entry for the shares during the week, and it is not at all unlikely that as the price is so low they will soon command a premium. A few may still be had at par (20s. fully paid), and should be bought at once as one of the cheapest and best investments to be found.

Tankerville at 3½ to 3½ should be bought; the mine is looking very well. Pandore and South Darren are both making monthly profits.

In copper mines, Crebor shares have again been largely dealt in, and the price has risen to 9½, 10. If the mine maintains its present condition, the shares will yet have an important advance. Parys Corporation has been enquired for at 14s. to 16s.

Tin shares have been in demand, East Lovell shares advancing from 20s. to 32s. It will be remembered what rich bunches of tin are met with sometimes in this mine; the lode already shows a good improvement. There are only about 1100 shares. The next Wheal Peevor dividend will be 12s. 6d. per share, and the balance increased to 1000. Shares firm at 12. West Peevor at 4 to 4½, and Wheal Basset at 2, should be bought.

Stock Exchange markets have been active, and a heavy business has been transacted in Brighton, A, North British, Great Eastern, Chatham Preference and Ordinary, Egypt, Mexican, &c.

ALFRED E. COOKE.

76, Old Broad-street, London, Sept. 26.

MARKET ECHOES AND MINING MATTERS.

It does seem as though the turn had come at last in mining. Tin, copper, lead, blonde, and iron are all very much better, and something like a return to old times has been seen in the aspect of the mining market during the last fortnight. Not since the days of the famous East Van rise has anything approaching the excitement daily witnessed over Crebor been known. Morning after morning the "opening price" has been eagerly waited for, and morning after morning the "bulls" have had it nearly all their own way. From a few shillings per share the price has been advanced to 10/-, so that the mine is now selling for 60,000/-; and yet a short time since one-third part changed hands for about 250/-.

Such are the prizes of mining. The writer of this article himself purchased, only in May last, some shares at 4s. each, and having some more offered at the same price hesitated before taking them. In fact, the rise was quite unforeseen even by those who week by week had been informed of every change in the mine.

The richness of the lode in the 108 and 120 has been a surprise to everyone. Even when it had, to a certain degree, made itself apparent, and the shares had had a spasmodic jump to 3½, even then the *connoisseurs* failed to appreciate the value of the discovery, and sold many shares, so that the price fell back to about 2½. But since then the valuations of the ends have greatly increased, and the rise has been continuous. To some the last sale of ore was a hint, but still even then "the market"—that is, speaking generally—failed to appreciate the discovery until the price had again greatly risen.

From enquiries daily made by investors, it is evident, however, that the actual nature of the discovery is far from being understood by the general mining public. There are many, judging from our correspondence, who think that with Crebor it is now merely a question of selling almost unlimited quantities of ore and of regularly dividing good profits for an indefinite time. Now, it is unquestionable, we believe, that the future of Crebor is not yet assured, and the moot point is this—the rich ore in the 108 and 120 coming from a new lode which will be found rich in the upper levels, and below the 120, or is it merely coming from a bunch, which sooner or later must cut out? Of course the "bulls" are fervent in their assertions that the rich ore ground is no mere bunch, and of course the "bulls" are just as confident in asserting the contrary. And at present the "bulls" are far too powerful for the "bears." Which is right we will not pretend to say; *in fact, no one at this moment can decide.* Time alone can show whether Crebor, which has hitherto been only known as a bunchy mine, is about to come before the mining world as a permanently productive one.

In the interest of those of the public—and they are many—who are hesitating whether or not to make an investment at the present high prices, that is in the interest of those whose general custom it is to buy after a great rise has actually taken place, and who, therefore, too frequently find themselves left the holders of shares at a purely artificial price, we would say that the position of Crebor is this—there is a rich course of ore in the 108 worth about 100/- per fathom. In the 120 it is also valued at about 100/- per fathom. These are the two points in the mine in which the lode has as yet been seen. A cross-cut is being put out in the 48 to cut it 60 fms. above the 108. If it is cut good there—say, worth 30/- or 40/- per fathom—Crebor shares will undoubtedly advance much higher, for it will be legitimately concluded that the lode holds productive right down from that point to the 120, and if to the 120 there is no reason why it should not be found rich also below that point. At the 108 and 120 can be seen magnificent courses of ore. The question is, will they hold on there? This can only be solved by driving on the lode. If it is found to continue rich the present price will not only be maintained but must rise considerably. If it is found to be only a bunch, the price of the shares must, of course, fall heavily.

And now a word to those who are holders of the shares at low prices—from 5s. upwards—and who hesitate to realise their present enormous profits. All we can say is that should any reaction sweep those profits away the holders can only blame themselves if they have failed to secure something like 400, 500, 1000, and even 4000 per cent. in a few weeks. The price of the shares *may* go higher—it may go much higher; on the other hand, it may come down with a rush. Prudent are those who, contented with their magnificent profits, secure them.

The influence of the Crebor rise has extended to other copper mines, many investors having looked about to see what low priced shares offered the chances of a speedy advance, consequently prices have advanced. East Caradon from 4s. or 5s. have risen to 25s. Parys Copper Corporation from being dull at 10s. have become in demand at 13s. to 15s. Devon Consols from 35s. have risen to 3½, 3. Melincourt are firm at 3 to 3½, and Marke Valley have an improving tendency at 2½ to 3.

Cornish tin shares have been largely dealt in, and owing to the still improved aspect of the tin market and the good statistical position of the trade, prices close firm all round. All the leading mines are strong, but strength is specially noticeable in Dolcoath, Peevor, and South Condurrow. Amongst the lower priced shares East Lovell have suddenly jumped up to 3½, buyers, in consequence of an improvement in the shaft (Sevorgan) about 20 fms. from surface. The part of the lode cut into is reported to be worth 20/- per fathom; this is of course in the new part of the mine. West Peevor have been largely dealt in at 3½ to 4½, and Wheal Jane from about 1 to 1½ have risen to 3, 3½.

Lead shares are very steady, thanks to the late rises in lead and blonde and the prospects of early further advances; for the revival of American trade is an undoubted fact. All the better known mines have been well supported, and with a slight increase in the demand prices will again become much firmer. We hear of a good improvement in Leadhills, 20 fms. under Gripp's level and 70 fms. from surface. The lode is stated to be worth 10 to 12 tons of lead per fathom. West Chiverton are 2½ to 3½. Contrary to expectation, it is now said that no call will be made at the forthcoming meeting, as the accounts—thanks to the late rise in blonde—are expected to show a small balance on the right side.

During the last few months quiet but excellent progress has been made at the Hafna Mine of the Mineral Corporation of Great Britain. In a very short time dressing operations will be in full swing when the manager—whose promises can certainly be thoroughly relied on—states he will commence to give good profits. In No. 3 adit (the mine is worked entirely by adits) the fine Hafna lode is standing for a distance of 200 fathoms, and as No. 4 is brought under this level the ore ground will be immensely added to. The mine has been inspected by independent mining engineers of the highest reputation, and all are unanimous in their opinions of the great value of the mine, and in their praise of the scientific, careful, and economical manner in which it has been developed, and the surface works laid out by the manager, Capt. William Bennetts. Operations only commenced on July 18, 1878, and yet in the course of a few weeks the mine will be making regular sales. Hafna will take the front rank amongst the mines of the Llanrwst district.

JAMES H. CHORFT.

FURNESS IRON AND STEEL COMPANY.—A statement of the affairs of this company, which is in liquidation, has been circulated by Messrs. R. Mackay and Co., accountants, Lothbury, London, and Royal Exchange, Middlesbrough. The liabilities to unsecured creditors are shown to be 88,885/- 12s. 8d., and the liabilities under unfavourable contracts and leases 9450/- 6s. 10d., making a total of 98,335/- 19s. 6d. Fully secured creditors represent 138,259/- 2s. 2d., this amount being estimated to be raised by the Askam Ironworks, consisting of 2s. per share. Crebor are weaker.

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 A roller, periphery of wise. This diminishes the electrode under mechanism axis being the roller.

four blast-furnaces and freehold land, leasehold iron ore mines and limestone quarries; but in the books of the company these properties appear at 254,576/- 1s. 10d. The assets are shown to be—pig iron and minerals, 6241/- 16s.; stores and old materials, 3198/- 2s.; and loose plant and tools, 15,124/- 14s. 9d. These three items at auction values are put down at 20,189/- 4s. 6d. The book debts are estimated to produce 14,626/- 12s. 10d., and the small sums bring the assets up to 35,393/- 2s. 1d. From this is deducted 9833/- 3s. 2d. for creditors claiming preferential payment, leaving 25,769/- 17s. 11d. The assets not definitely ascertained—such as pig-iron purchased and paid for by the company, and not delivered; 6225 tons of Bessemer iron at (say) 45s. per ton, 15,358/- 19s.; and book debts, 6367/- 14s. 9d.—represent 21,724/- 4s. 9d., bringing up the assets to 47,514/- 2s. 8d., against liabilities at 98,335/- 19s. 6d. The liabilities for bills under discount are 36,054/- 19s. 3d., the whole of which will be met, it is expected, at maturity. Beneficial interest in contracts for delivery of hematite pig-iron, 56,611 tons, estimated value, if completed, at 2s. 6d. per ton, is put down at 7076/-.

PEARSON AND KNOWLES COAL AND IRON COMPANY.—The profit on the operations for the past year has been 10,132/- The undivided profits for the years 1877 and 1878 amount to 17,845/- It is recommended that these sums, making together 27,978/- be consolidated, and that a year's dividend be paid upon the "A" shares. This will absorb 13,062/- and leave 14,916/- to be carried forward.

THE WEEK.

SATURDAY, SEPT. 20.—*Holiday.* Stock Exchange being closed for repairs.

MONDAY.—The markets opened with considerable animation, and a respectable advance was established in home railways, foreign bonds, and American railways. The traffic returns of Brighton (85/- decrease) encouraged buying, and the A stock finally closed at a rise of 1½. North-Eastern advanced ½; Dover, 4, ½. Erie bonds and shares were in marked request in response to high prices from New York. The Second Mortgage rose 2½ (75%), and the Five per Cent. 1½ (75%). The shares advanced 1½. Reading shares touched 19½, and Illinois Central 95. All these shares are now so regulated, moving upwards or downwards in mechanical order, that operators prefer them to foreign bonds, and make much more money by the change. Egyptian bonds were a good market. The State Domain advanced 1½, to 80. The preference reached 7½. Sellers of Wheal Crebor were able to get 8½.

TUESDAY.—To-day sellers of Wheal Crebor were able to get 8½, and buyers had to pay 9. A large business was again done in Egyptian Bonds, and the Preference touched a point (74½) never seen before this year. Unified closed 47½ to 47¾; the Daria Loan was comparatively quiet at 57½ to 58. Buying of Brighton, A, was resumed, and the stock rose to 113½; from this price there was a sharp fall of 1 per cent., owing to the weather becoming again unsettled. North British and Dover, A, closed ½ lower. Caledonian, 92½ to 92¾; North-Eastern, 135 to 135½; Great Eastern, 55½ to 55¾; Great Western, 96½ to 96¾; Midland, 124½ to 124¾. East Argentine Railway shares have now reached 10.

WEDNESDAY.—A sudden demand sprung up for Chatham Ordinary (termed "Old Chatham's"), which have been neglected for weeks and months. The stock was in plentiful supply yesterday at 23½, but very quickly reached 24, this morning, and ultimately left off at 24½, a very important rise. The preference closed 1½ higher. The Brighton market was comparatively neglected, and talk about a competing line was indulged in. The last price was 112½. North British at one time was selling at 67; from this there was gradual fall, the closing price not being better than 65½. Great Eastern declined to 55½. In Egyptian stocks the Daria Loan came in for a large share of attention, advancing 1½, to 59. Owing to the closing of a small "bear" account a marked rise was shown in Wheal Crebor, sellers standing out for 10½ and 10¾.

THURSDAY.—Nothing was said this morning about a competing line to Brighton, and the morning being fine Brighton, A, opened at 113, or ½ per cent. better, and remained steady at that throughout the day. Chathams were sold, both the ordinary and the Preference, though the fall in both was limited to ½. There was the same limited fall in Egyptian Unified and Preference. East Argentine, 10½ to 10¾; Royal Sardinian, 8½ to 10½; Mexican First Preference, 7½ to 8; Erie shares 82½ to 82½; Second Mortgage, 7½ to 7¾; Great Eastern, 55½ to 55¾; North British, 65½ to 65¾; North-Eastern, 135 to 135½. Business has been done in Tankerville at 3½, and in Rio Tinto at 5½. Austrian Gold have moved up ½ per cent. (to 70%). New Querida, 23½ to 25. Wheal Crebor, 9½ to 10½. A rise of nearly 1 per cent. has taken place in Anglo-American Telegraph ordinary stock. Brighton, A, stock inclined to dullness at 112½.—*Four o'clock.*—The rise in Anglo-American Telegraph shares was maintained to the last. The report which was issued this afternoon is considered very good; there is to be an interim dividend of 1½ per cent. on the three classes of stock, after which there remains 37,500/- to be carried to the renewal, and 70,000/- to the reserve funds. Fear of competition with the new French company is the only check to a great rise here. Towards the close some little excited buying was done in Parys Corporation shares at all prices, from 14s. to 16s. Chapel House Colliery, 1½ to 1½; Devonport and Tiverton Brewery, 4 to 5; Newport Abercarn, 4 to 4½; Cardiff and Swansea, 10s. to 15s.; Bilson and Crump, 10s. to 20s.

FERNAND R. KIRK.

THE WARRINGTON WIRE WORKS.

During the proceedings of the Iron and Steel Institute at Liverpool, on Thursday, a party of members visited the Warrington Wire Works, which are situated in immediate contiguity with the London and North-Western Railway, branches of which are, in fact, carried through and around the premises, and a branch of the Midland Railway is at present being constructed and nearly completed, also directly connecting the works with the whole systems of railways belonging to those large national means of locomotion. By these means the pig-iron and coal for puddling, shingling, and rolling are conveyed at once into the works and deposited in the immediate vicinity of the puddling furnaces, in which the varied mixtures of pig-iron required for manufacturing ductile and tenacious wire are remelted and assimilated. The mixing is a process of great nicety and one which requires the utmost skill and attention, as on it a great measure depends the value and suitableness of the wire for the different purposes to which it is to be applied. The necessary quantity of iron and coal to be used is delivered at what may be termed the Frughall end of the works at which there are 23 puddling-furnaces arranged in a semi-circle round the outer curve of which the railway trucks travel and deliver their respective loads, and it is worthy of remark that from the judicious arrangements of the establishment the crude material passes through the several states of manufacture by passing on from one department to another till the final process is reached without ever passing twice over the same space or being returned again it may be called a backward movement. This is chiefly valuable as it affords economic means of carrying on the work; it is also valuable in maintaining the orderly management of the whole establishment. The puddle bloom, one of which is a powerful tilt and the other a steam-hammer, by which the impurities of the mass are beaten out, the iron itself being hammered into an elongated block. This block is then passed through rollers, by which it is drawn out into lengthened bars of iron, which are cut into short lengths by powerful shears worked by steam after the bars are cooled. After being cut into billet lengths the billets are placed in the billet-furnace, where they are again heated nearly to melting point.

Immediately on being withdrawn from this furnace they are passed through a series of rapidly diminishing rollers, by which they are drawn out with surprising rapidity into long and twisted rods, which when they have been rolled to the required lengths, are deftly taken up by a boy with a pair of long tongs. He thrusts the end, or what may be termed the irregular portion of the hot metal between a pair of strong shears, and it is then cut off. The rod is then twisted round a spoke of a reel, which rapidly forms it into a coil. After this it is put on a wheeled kind of carriage. This terminates the making of the rod fit for the drawing mill, to which it is removed. The rod making is continuously carried on day and night by relays of operatives for the different processes of puddling, billeting, and rolling. The pointing of the rods is performed by two machines which work at the rate of 250 revolutions per minute. The rod is introduced into a central aperture in the machine, by which it is rapidly drawn in for two or three inches. The central aperture is slightly conical, and its action in revolving speedily forms the point of the rod into a uniform cone an inch or two in length, thus effecting a much superior point to the production by hammer and anvil. The machine-made point is much more suited to the drawing plates or blocks, by which the process of "ripping" or first drawing is performed. Another advantage claimed for the machine pointing is that it is done cold, which has the effect, it is said, of making both a harder and a more uniform point, in addition to which it is done with much greater expedition and, consequently, much more economically. After being pointed, the rod coils are placed in an acid solution for the purpose of cleansing them thoroughly from rust or oxidation. They are then carefully washed, after which they are dried in an oven constructed for the purpose, having in the meantime been coated with lime, which has the effect of rendering the rods less liable to damage or scratching in their passage through the steel plate or die by which the ripping is performed. In the process of drawing through the ripping plate the rod acquires a certain amount of hardness which would greatly interfere with the subsequent process of drawing.

To remove this hardness and facilitate the after processes of the drawing mill, the coils of ripped rods are subjected to the process of annealing. This process is performed in annealing pots. Generally speaking, these pots are built in groups of four, the flames being conducted into one descending flue, which is connected underground with a large central chimney. By this means considerable economy of fuel is effected, the annealing heat being connected and sustained with greater precision than when the furnaces are separate and independent of each other. When the ripped rods have been sufficiently annealed they are subjected to the ordinary processes of wire-drawing. Here also the processes of tinning and coppering the wire are carried on with marked success and on a large scale, the tinning being effected by passing the rods through a bath of melted tin, the coppering by passing them through a strong solution of sulphate of copper, their respective coatings being elongated as the wire is drawn through a succession of diminishing apertures in the steel blocks until the wire has attained the desired extent of tenacity. Here wire is drawn from the size required for telegraph purposes down to No. 48, which is of such a degree of fineness as to re-

semble the finest floss silk. Wire of such fineness as that last referred to is not very generally used, although considerable quantities are occasionally required. The large drawing-mill is 100 ft. in length; it is amply supplied with all the best kinds of machinery, and is believed to be the largest in the kingdom. The production of the works is about 250 tons per week of drawn iron wire. The visitors showed much interest in their inspection of these excellent works.

IMPROVED SPLIT PISTON RING.

An improved piston ring, some of the many advantages of which are that it may be adjusted with the same nicety after continued wear as when new, that its insertion into the cylinder is perfectly easy, that it can be set without any withdrawal of the piston from the cylinder, and that the adjustment of the spring is so sensitive that the friction is reduced to a minimum, and the rings are serviceable until completely worn out, has been invented by Mr. R. H. ELLACOTT, of Plymouth. The invention has for its object the application of a cheaper and more efficient spring ring to pistons of engines, pumps or any other suitable material, and either turned true or cast in a chill, but in all cases the improvement consists in applying an ordinary spring, spiral, curvilinear, or of any other suitable form, so as to give elasticity and an outward pressure to the said rings. This is effected by casting lugs or projections on the inside of the rings, one on each side of an open joint. These lugs or projections afford suitable bearing surface to a spring which is pressed in between these two lugs so that its elasticity presses the lugs, or in other words the ends of the ring apart. This action has the effect of pressing the whole body of the ring outwards, causing it to make a secure steam tight joint on the whole of its outer surface. This spring is manufactured in any usual manner so as to prevent its elasticity being affected by heat, and may be of any convenient form, spiral, curvilinear, or as otherwise may be suitable.

When it is not desirable to have projections on the inside of the ring he can simply place the spring between the split ends of the joint, either leaving the said ends straight or forming them in a groove or recess to hold the spring in position. When the spring is in the form of a lyre he can regulate its expansion as

WATSON BROTHERS' MINING CIRCULAR.

WATSON BROTHERS,
MINEOWNERS, STOCK AND SHARE DEALERS, &c.
1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON.

Ten years ago the weekly information which had previously been published for great number of years in WATSON BROTHERS' Mining Circular was transferred to the columns of the *Mining Journal*, with the following announcement; which is now reproduced in consequence of the numerous letters and enquiries handed to them of late in reply to one which appeared in the *Journal* on the Clementina Mine.

In the year 1843, when mining was almost unknown to the general public, attention was first called to its advantages, when properly conducted, in the "Compendium of British Mining," commenced in 1837, and published in 1842 by Mr. WATSON, F.G.S., author of "Gleanings among Mines and Miners," "Records of Ancient Mining," "Cornish Notes" (first series, 1862), "Cornish Notes" (second series, 1863), "The Progress of Mining," with Statistics of the Mining Interest, annually for 21 years, &c., &c. In the Compendium, published in 1843, Mr. WATSON was the first to recommend the system of a "division of small risks in several mines, ensuring the success in the aggregate," and Messrs. WATSON BROTHERS have always a selected list on hand. Perhaps at no former period in the annals of mining has there been more peculiar need of honest and experienced advice in regard to mines and share-dealing than there is at present; and from the lengthened experience of Messrs. WATSON BROTHERS they are emboldened to offer, thus publicly, their best services and advice to all connected with mines and mining.

Messrs. WATSON BROTHERS are daily asked their opinion of particular mines, as well as to recommend mines to invest or speculate in, and they give their advice and recommend mines to the best of their judgment and ability, founded on the best practical advice they can obtain from the mining districts, but they will not be held responsible, nor subject to blame, if results do not always equal the expectations they may have held out in a property so fluctuating as mining.

The great extension of mining business, the difficulty so often complained of by country shareholders in getting accurate and disinterested information as to the state of Cornish and Foreign Mines, and of the financial and real position of mining companies generally, have induced Messrs. WATSON BROTHERS to make their Circular now published in the *Mining Journal* more extensively known, and to state—

That they issue daily to clients and others who apply for it a Price List (as supplied to most of the London and country papers), giving the closing prices of Mining Shares up to Four o'clock.

They also buy and sell shares for immediate cash, for the usual fortnightly settlement in all Mines dealt in on the Mining and Stock Exchanges, at the close market prices of the day, free of all charge for commission. They deal also, on the same terms, in the Public Funds, Railways, Telegraphs, and all other Securities dealt in on the Stock Exchange.

Having agents in all the mining districts, they are constantly getting mines inspected for their own guidance, and will also obtain special reports of any particular mine for their clients, for the inspecting agent's fee of £2 2s.

Scarcely a day passes that we are not asked question after question in regard to Wheal Crebor, and many of our correspondents if they would refer back to the *Mining Journal* would find that answers to many of their enquiries have already been given. In fact, we have kept our readers posted up step by step as regards the state of the mine and the importance of the new discovery. We may now add that the mine is held under lease from the Duke of Bedford for 21 years, from March 25, 1875, at 1-15th royalty. It is worked by water-power from the Tavistock Canal, which never fails winter or summer. This is a most important feature in the mine, and sometimes lost sight of, for the costs in consequence are lower than any other mine of like importance that we know of anywhere. Up to this time the labour cost has been about 180/- per month; merchants' bills, 20/-.

The mine was originally discovered in cutting the Tavistock Canal in the year 1803, and the late Mr. John Taylor, we believe, worked it, Capt. Hitchins, the father of Mr. Jehu Hitchins, being agent, and the venerable Jehu himself was employed on the mine. The returns of copper from this the first "Crebor bunch" yielded over 150,000/-, and, as Mr. Jehu Hitchins informs us, over 50,000/- profit. The present company, in which we have been shareholders more than 20 years, in driving the level east have sold over 50,000/- worth of ore, and would have made good profits but for the fall of 2/- per ton in copper ore. In 1874 the levels—the 108 and 120—were driven to the boundary of the sott, and the latter over a course of ore 40 fms. long, yielding in places 10 tons of ore per fathom, and running into beautiful channel of ground in the valley. Therefore, a new lease was obtained early in 1875 of about 300 fms. of ground on the run of the lodes, and towards the rich old Crowndale. To work this ground, and get down to the ore in the 120 fm. level, a new shaft was commenced from surface, and is now down 48 fathoms. We always had the idea that this shaft would result in ultimate success, but did not expect it till it had got down very much deeper. The lease compelled its being sunk a certain number of fathoms a year, and the mine a few months ago was so poor that nearly half the shares in it were on the point of being relinquished, and if they had been the company would have been wound up and the mine stopped. We prevented this, however, ourselves, by taking the whole lot of shares and distributing them among our clients at 2s. each. Since then 3s. 6d. per share has been made in calls, and this (quite unexpected) discovery of a new lode has all at once placed the mine in position to return large profits.

In estimating reserves of ore it is customary with all agents to value 5 fathoms above and 5 fathoms below each level. Thus the ore laid open in the 120 level at Crebor in the old lode, 40 fms. long, worth 20/- per fathom on the average, would be valued at 80,000/- The new south lode is worth 100/- per fathom at the 120, and 100/- per fathom in the 108, giving a length of nearly 40 fathoms between them. This run for that length, and 12 fathoms deep between the levels, would be estimated at 48,000/-, but if taken in the usual way (5 fathoms above the 108 and 5 fathoms below the 120) there would be a further valuation of 40,000/-, making nearly 100,000/- of ore already discovered. In reference to shares we may add nearly 3000 were sold in December last at 1s. 6d. per share, and so late as June last nearly 1000 at 5s., and they have now been done at 10/- each.

As we indicated in our remarks about a month ago, we fully expected that the merits of the mine would eventually bring shares to 10/- each, but that price has certainly been realised sooner than we expected. The grand point now is the cross-cut at the 48 level to intersect this new south lode, and if met with as rich as it now is in the 108 the mine would soon be in a position to pay 20 per cent. even upon 20/- per share. Of course, the 120 and 108 ends will be watched week after week, and every change in their value noted, so that shares may be influenced up or down in the market. But the investor should not regard this.

From Tuesday to Saturday last week the ore broken from the new lode at the 108 east was kept by itself, and sent to pile without dressing, and it produced by assay 13 per cent. for copper. This at 10/- per unit would be worth 6/- per ton, and is a fair specimen of the ore in the new lode.

We hear from Parys Corporation that the forebreast in the 90 south is mixed up strongly with sulphur, similar in character to the open-cast ground near the great bunches formerly wrought on. The present dip of the ground is almost perpendicular, instead of underlying about 2 ft. in a fathom, as seen in some of the upper workings. If the lode should happen to take the same dip there will be a few fathoms further to drive to cut it.

At Clementina the agents are busy clearing the roadside shaft, in which it has always been said there was a fine course of lead left. In the bottom now there are 3 fms. of mud, and the pumps are bringing up lead; the bottom of the stream from the pump is covered with lead. This makes it clear there is lead in the shaft, and we hope shortly to get at the bottom of it and into a good discovery.

At D'Eresby Mountain the agents hope to see the bottom of No. 5 pump by the end of this week.

At D'Eresby Consols several branches of spar have been met with, 3 in. or 4 in. wide, which looks as if the lode were near.

At Aberllyn, No. 3 level is coming into blonde; in a rise from that level there is a branch of solid blonde.

One of the most experienced copper miners of the day lately inspected Crebor, and writes us:—"I was agreeably surprised to see such a fine lode of ore. The discovery of ore at two points, nearly

40 fms. apart—the 108 and 120—goes a great way to show that the new south lode is likely to be productive for a great length; and if the same lode can be cut rich in the cross-cut at the 48, with the known fact of a lode worth 90 tons of ore per fathom at the 120, the deepest point of the mine, I should say Wheal Crebor will soon become the great mine of the day." We may add to this that Capt. Holman, of South Cadron, has inspected the mine this week, and his report, which we have seen, fully confirms the agent's valuation of the 120 and 108 at 100/- per fathom each.

Herodsfoot has sampled 50 tons of silver-lead ore; 30 tons produces 76 per cent. of lead and 36 ozs. of silver to the ton: 20 tons yields 29 1/2 per cent. of lead and 28 1/2 ozs. of silver per ton.

FRIDAY, FOUR O'CLOCK.—We learn by telegram that the sampling at Wheal Crebor to-day is 204 tons; the percentage we shall know next week. But for a breakage, and another delay last week, the quantity would have been 250 tons at least. The quality of the present sampling is far better than the last, and has been got without a single stope, as the 108 winze was only communicated with the 120 end about a week ago, and will only come into play for the next sampling.

SATURDAY, SEPT. 19.—Market quiet. Parys Copper shares in demand. East Cadron and Crebor weaker. Parys Copper, 11s. to 13s.; East Cadron, 1 1/2 to 1 1/2; Crebor, 7 1/2 to 8; Carn Brea, 30 to 32 1/2; Dolcoath, 30 to 32; South Frances, 8 1/2 to 9; Van, 15 to 16; Great Laxey, 15 1/2 to 16 1/2; Pever, 11 1/2 to 12; Herodsfoot, 2 1/2 to 3 1/2; Tankerville, 2 1/2 to 3 1/2; Marke Valley, 12s. 6d. to 15s.; Don Pedro, 14s. to 16s.; Richmond, 8 1/2 to 9 1/2.

MONDAY, SEPT. 22.—Market rather quiet. Wheal Crebor, East Lovell, Don Pedro, and Parys Copper shares chiefly in demand. Crebor, 8 1/2 to 9 1/2; East Lovell, 2 1/2 to 3 1/2; Don Pedro, 14s. to 16s.; Parys Copper, 11s. to 13s.; Roman Gravels, 8 1/2 to 9 1/2; Tankerville, 3 to 3 1/2; South Frances, 8 1/2 to 9; South Conduff, 11 1/2 to 12; Tincroft, 10 to 10 1/2; Grenville, 4 1/2 to 5; West Basset, 5 to 5 1/2; Wheal Basset, 1 1/2 to 2 1/2; Pever, 11 1/2 to 12; Mellancar, 3 1/2 to 3 1/2; West Tolgus, 24 to 26.

TUESDAY, SEPT. 23.—Market moderately active. Crebor, Tankerville, Devon Great Consols, Don Pedro, and Parys Copper shares in demand. Tin shares firm. Carn Brea, 31 to 33; Dolcoath, 31 to 33; South Conduff, 11 1/2 to 12 1/2; South Frances, 8 1/2 to 9; West Frances, 5 1/2 to 6; Crebor, 8 1/2 to 9 1/2; Tankerville, 3 1/2 to 3 1/2; Devon Great Consols, 2 to 2 1/2; Parys Copper, 11s. to 13s.; Don Pedro, 15s. to 17s. 6d.; Aberllyn, 10 to 12; East Lovell, 3 to 3 1/2; Leadhills, 2 to 2 1/2; Basset, 2 to 2 1/2; Grenville, 4 1/2 to 5; Pever, 11 1/2 to 12; Herodsfoot, 2 1/2 to 3 1/2; Mellancar, 3 1/2 to 3 1/2; Marke Valley, 12s. to 17s. 6d.; Morla Du, 13s. to 17s. 6d.; Parys Copper, 11s. to 13s.; Roman Gravels, 8 1/2 to 9 1/2; South Conduff, 11 1/2 to 12 1/2; South Frances, 8 1/2 to 9 1/2; Tankerville, 3 1/2 to 3 1/2; Tincroft, 10 to 10 1/2; Van, 15 to 16; West Basset, 5 to 5 1/2; West Chiverton, 2 to 3; West Frances, 5 1/2 to 6; West Tolgus, 24 to 26; Basset, 2 to 2 1/2; Crebor, 9 1/2 to 10; Grenville, 4 1/2 to 5; Pever, 11 1/2 to 12; Cape Copper, 28 to 29; Don Pedro, 15s. to 16s.; Richmond, 8 1/2 to 9 1/2; Santa Barbara, 32s. 6d. to 37s. 6d.

THURSDAY, SEPT. 25.—Market is rather quiet, and prices about the same as yesterday.

FRIDAY, SEPT. 26.—Market very active for tin shares. Wheal Crebor in great demand, at a further advance. Carn Brea, 31 to 33; Cook's Kitchen, 2 to 2 1/2; Devon Great Consols, 2 to 2 1/2; Aberllyn, 10 to 12; Dolcoath, 31 to 33; East Cadron, 1 1/2 to 1 1/2; East Lovell, 3 to 3 1/2; East Van, 1 to 1 1/2; Glenroy Lead, 7s. 6d. to 12s. 6d.; Great Laxey, 15 1/2 to 16 1/2; Herodsfoot, 2 1/2 to 3 1/2; Leadhills, 2 to 2 1/2; Basset, 2 to 2 1/2; Grenville, 4 1/2 to 5; Pever, 11 1/2 to 12; Herodsfoot, 2 1/2 to 3 1/2; Mellancar, 3 1/2 to 3 1/2; Marke Valley, 12s. to 17s. 6d.; Morla Du, 13s. to 17s. 6d.; Parys Copper, 11s. to 13s.; Roman Gravels, 8 1/2 to 9 1/2; South Conduff, 11 1/2 to 12 1/2; South Frances, 8 1/2 to 9 1/2; Tankerville, 3 1/2 to 3 1/2; Tincroft, 10 to 10 1/2; Van, 15 to 16; West Basset, 5 to 5 1/2; West Chiverton, 2 to 3; West Frances, 5 1/2 to 6; West Tolgus, 24 to 26; Basset, 2 to 2 1/2; Crebor, 9 1/2 to 10; Grenville, 4 1/2 to 5; Pever, 11 1/2 to 12; Cape Copper, 28 to 29; Don Pedro, 15s. to 16s.; Richmond, 8 1/2 to 9 1/2; Santa Barbara, 32s. 6d. to 37s. 6d.

THURSDAY, SEPT. 25.—Market is rather quiet, and prices about the same as yesterday.

FRIDAY, SEPT. 26.—Market very active for Parys Copper, and shares advanced to 15s., buyers. Crebor, 9 1/2 to 10 1/2; Parys Copper, 15s. to 17s. 6d.; West Tolgus, 25 to 27 1/2; Carn Brea, 31 to 33; Dolcoath, 32 to 33; South Frances, 8 1/2 to 9 1/2; Van, 15 1/2 to 16; Great Laxey, 15 1/2 to 16 1/2; Herodsfoot, 2 1/2 to 3 1/2; Tankerville, 3 1/2 to 3 1/2; Richmond, 8 1/2 to 9 1/2.

MONDAY, SEPT. 24.—Market very active for Parys Copper, and shares advanced to 15s., buyers. Crebor, 9 1/2 to 10 1/2; Parys Copper, 15s. to 17s. 6d.; West Tolgus, 25 to 27 1/2; Carn Brea, 31 to 33; Dolcoath, 32 to 33; South Frances, 8 1/2 to 9 1/2; Van, 15 1/2 to 16; Great Laxey, 15 1/2 to 16 1/2; Herodsfoot, 2 1/2 to 3 1/2; Tankerville, 3 1/2 to 3 1/2; Richmond, 8 1/2 to 9 1/2.

MR. WILLIAM H. H. WATSON, who has made a special recommendation of WHEAL CREBOR SHARES since they were 5s. each, would now call attention to Herodsfoot and Parys Corporation, in both of which a rise may be looked for. Is a buyer of the latter at 15s., and seller at 17s. 6d.

Address: W. H. H. WATSON, 1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON, E.C.

Mining Correspondence.

BRITISH MINES.

ABERLLYN.—John Roberts, Sept. 24: I have nothing new of any importance to report this week. We have a nice branch of solid blonde in the rise at the No. 3 adit, about 6 in. wide. The No. 2 cross-cut is without change. The No. 1 stope at No. 2 adit is much of the same character and value. The No. 2 stope is a little disordered by a slide intersecting it. We have taken down the lode in the stope on the shale, which is worth 2 tons of blonde per fathom. The winze is looking a little better. There are nice patches of blonde in the Valley cross-cut. We are pushing on the dressing towards another sampling. The machinery works well.

BETTWYS-Y-COED.—C. J. Sims, Sept. 25: We have completed the casing and dividing of the flat-rod shaft to the 30, and have commenced drawing from the bottom. The 30 east is set to drive, to two men, at 5/- per fathom. In the 30 west the lode is composed of killas, spar, and lead ore to the value of 1 ton per fathom, and is looking very promising for further improvement. Allen's stope in the back of the deep adit level is worth for lead ore 25 cwt. per fathom. The lode in the stope in the back of the shallow adit level is of the same value as when last reported. The machinery is working well, and the orestuff is yielding fully as much as we expected.

BLAEN CAELAN UNITED.—J. Pell, Sept. 25: There is nothing new to report this week; our bargains remain without change. Hope daily to cut the Egairbir lode; have intersected some strings and branches this week, and have a heavy stream of water flowing from the forebreast. Machinery working well.

BLUE HILLS.—S. Bennets, P. Vian, Sept. 20: There has been no lode taken up in the shaft since last reported on, and consequently no change to notice. The lode in the winze below the 30 is not quite so productive as it has been, and is present worth 5/- per fathom, and the stope about 6/- per fathom. In the 30 east end the lode is 2 ft. wide, and occasionally producing some good tin-stuff, but is not at present of much value.

BODIDRIS.—H. Hotchkiss, Sept. 24: I have nothing new to report this week. The development of the Mæs-y-pwll lode progresses favourably, and from it at the different points of operation we are raising rich lead ore. A full report next week.

BWLCH UNITED.—Nicholas Bray, Sept. 20: Richie's engine-shaft is down 11 fms. below the 90, and the men are now employed cutting ledge for stuff previous to starting to drive a cross-cut at the 100 to prove the lode. The stuff in the ledge is well cleared and driving eastward resumed on a ledge 3 ft. wide, and although the drive has not got under the deposit of ore seen in the 50, the lode is getting more mineralised, and I anticipate an improvement shortly. I have been obliged to get timber for making some new ladders in Cwmraig (the place I pointed out to you when down here), and they will be made and erected forthwith. All the machinery is working admirably and entirely free from let or hindrance, and with a full supply of water.

CLEMENTINA.—John Roberts, W. Sandoe, Sept. 24: The ends at the bottom level are without change since last week. We forced out the water at the roadside shaft as far down as the slime and debris, when we considered the lift rested on the bottom of the shaft, but when liberated it slipped down into the slime for some distance, and expect to the bottom, as a great deal of fine lead found its way to the head of the pump with the water. We can hardly say how long it will take to clear the shaft and levels, but no time will be lost in accomplishing it. The little accident above referred to hindered us a day, but now everything is all right again.

COMB MARTIN.—J. Conner, Sept. 25: The lode in the north-west adit end is improving in character as we get away from the influence of the cross-course; the lode is about 6 ft. wide, containing a large quantity of quartz, with good patches of silver-lead ore, which we are saving out for dressing. The lode in the winze below the adit level is about 2 ft. wide, worth from 6 to 8 cwt. of beautiful rich silver-lead ore per fathom. The winze is now down 12 fms. 1 ft. below the adit level. We have suspended the sinking for the time, and put the men to open for a new level north-west from the bottom of the winze, where we have a good lode going in

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a north part of the lode, where during the past month we have broken some good quality copper ore. Two stope in the back of the 40, by four men in each; No. 1 at 4 ft., yielding 3 tons, and No. 2 at 3 ft., yielding 2 1/2 tons per fathom. To stop the bottom of the 30, by four men, at 4 ft., yielding 3 1/2 tons per fathom. To continue the cross-cut north near the western end at the 30, by two men, at 4 ft. per fathom. To cross-cut south near the western end at the 10, by two men, at 3 ft. 3 tons of ore per fathom. We have also set 10 pitches to 20 men in different parts of the mine at tributes varying from 10s. 6d. to 13s. 4d. in 17.

MELLANEAR.—John Gilbert, Sept. 24: The lode in the 20, west of rise west of Gundry's shaft, is 2 1/2 ft. wide, and yielding 1 ton of copper ore per fathom, and some saving work for lead and blende. The lode in the 30, west of Gundry's shaft, is 1 1/2 ft. wide, and producing stones of copper ore, but not sufficient to value it. The lode in the 40, west of shaft, is 4 ft. wide, and producing good stones of copper and lead ores; a well-defined and promising-looking lode. The lode in the 60, west of shaft, is 3 ft. wide, and yielding 1 1/2 ton of ore per fathom. The lode in the 60, west of shaft, is 4 ft. wide, and yielding 3 tons of ore per fathom. The rise in the back of this level is also worth 3 tons of ore per fathom. The lode in the 70, west of shaft, is 3 ft. wide, and yielding 2 tons of ore per fathom. The lode in the 70, west of shaft, is 4 ft. wide, and yielding 2 tons of ore per fathom. The lode in the 80, west of shaft, is 5 ft. wide, and yielding 2 1/2 tons of ore per fathom. The lode in the 90, west of shaft, is 4 ft. wide, and yielding 5 tons of ore per fathom. The lode in the 100, east of shaft, is 4 ft. wide, and yielding 1 ton of ore per fathom, but the ground is very wet and spare for driving. We have cut through the lode in the 100, east of shaft; it is 7 ft. wide, and the men are now driving on the south part, for 4 ft. wide, yielding 2 tons of ore per fathom. There is no change in the ground in Gundry's shaft, which is now down 9 fms. 2 ft. below the 100. The men are making good progress in driving the 70 cross-cut south of the skip-shaft, but have not yet intersected the lode. There is no alteration in any other bargin, and the stope through the mine are looking just as usual.

MONYDD GORDDU.—J. G. Green, Sept. 24: We have put in a stope under No. 2 stope, in the 34, and shall resume the drivage westward in the course of a week. No. 1 stope, on the caunter, is worth 25 cwt. per fathom. There is no chance to notice in the end of the 24 west, the ground being favourable for progress, but containing as yet no ore. I expect to effect a communication with the 12 winze in the course of 10 weeks from this date, when we shall have some good sections of ground in this part of the mine available for stopeing. The rise and drift on the cross-branch over the winze both carry a nice branch of solid lead, but not sufficient to set a value on. The winze sinking below the 12 is down 23 ft., worth for length (7 ft.) 30 cwt. of lead and 20 cwt. of blende per fathom, in a very strong and promising lode; there is an increase of blende for the last few feet sunk. Drawing and dressing are going on regularly, with a full supply of water, and all the machinery is in first-rate order. We have completed the addition to the embankment of the Monydd Gorddu reservoir, by which means we have increased its capacity threefold, and as soon as the crops are cleared we shall utilize it; this has been a very cheap and most useful piece of work. I have sampled 30 tons of lead ore, for sale on Sept. 30.

MORFA DU.—T. Mitchell, Sept. 25: Good progress continues to be made in sinking the engine-shaft below the 48 fm. level. The stopeing points in back of the 48 and 35 fathom levels are looking much as usual. Saturday next will be our setting-day.

NEW CATHEDRAL.—S. Davy, Sept. 25: Good progress is being made in both our underground and surface operations, and since my last we have been engaged in fixing the 8-inch plunger-lift from the adit to the surface, making drains for taking away the waste water from the engine, and getting ready all necessary requirements for the 12-inch lift, and also in erecting a larger capstan; the same having now been completed we shall be enabled to commence with the lowering of the larger size pitwork with greater dispatch, and with fair progress I hope to be able to report in my next the starting of the engine.

PANDORA.—H. Nottingham, Sept. 24: New Lode: We have now resumed the driving of the 33 fm. level, and with the facilities we now have hope to make good progress. There is a strong branch of blende on the footwall, but no lead to speak of. We have put in stope and hoped to keep up the stope from stope in No. 1 winze, and shall now proceed to lay the tramway, &c. The stope in north end of No. 1 winze is looking well—worth 2 tons of lead and 1 ton of blende to a fathom. The lode in the 23 fm. level driving is without change, still showing spots of lead and blende, intermixed with the lime spar. No. 2 stope over this level is looking better; worth 1 ton of lead and 25 cwt. of blende to a fathom. The water is still standing in the No. 2 winze under this, so that we cannot resume the sinking of it yet, but hope the bottom will shortly drain the lode here. Goddard's Lode: In the 33 fm. level I have brought down the m'n from the 108 stope in the back of the 108 is worth 12 ft. per fathom. The new lode at the 108 fm. level, east of cross-cut, is 3 feet wide, and worth from 100 ft. to 110 ft. per fathom. The new lode at the same level, west of cross-cut, is 6 ft. wide, and worth 200 ft. per fathom. There is no change in the 48 cross-cut south. At the new shaft we are engaged in drawing the pitwork to surface, which will be completed in a day or two.

WHEAL UNY.—William Rich, Matthew Rogers, Sept. 23: The 172 fm. level cross-cut south is easier for driving than it has been, and carries small branches containing tin. The 172 end, west of old engine-shaft, is worth 9 ft. per fathom. The rise and stope in back of this level is worth 12 ft. per fathom. The 160, east of Gooding's, is unproductive. The 130 end, east of King's, is worth 7 ft. per fathom.

FOREIGN MINES.

ST. JOHN DEL REY.—Telegram from Morro Velho, dated Rio de Janeiro, Sept. 22: Produce eleven days (first division of September), 12,250 ots. = 47462; yield, 6 1/2 ots. per ton.

—Telegram, dated Rio de Janeiro, Sept. 23: Profit for August, 66004.

DON PEDRO.—Telegram, dated Rio, Sept. 23: Produce cleaned up (first division of September), 700 ots.

Capt. Vivian reports under date Aug. 24: Mine and Drainage: No. 1 incline shaft has been forked and cleared of debris to within about 22 ft. of the bottom of the 50. Downward the shaft is still full of mud and fine sand, which is very troublesome and makes progress slow. The No. 2 incline driving shaft is cleared, secured, and a double line of rails laid down 216 ft. below the adit level. We have no difficulty here, there being no water. The 60-ft. wheel, pit-work, and all the machinery connected therewith are working remarkably well; in fact, nothing could be better. We have now three stope working eastward, or down hill, on the new lode discovered at Bryant's by exploring rise. The whole width opened from north to south is about 40 ft. Altogether it is a large fine looking lode, and the quality of the ore is improving as operations are being extended on it. Since my last five boxes of ore have been taken from the vein, but not yet been treated, therefore I cannot give you the result. I may mention, however, that the vein continues to look very promising indeed. It seems that we are opening out a large body of ore ground; should it continue it will be a great advantage, not only as regards the quantity of the ore and the return of gold which may be obtained from it, but it being all dry will be of great assistance when mixed with the wet and muddy stuff from the bottom of the mine. Thus there will be no difficulty experienced in passing through the jiggling machinery as otherwise would occur in treating the latter by itself. Since this lode has been discovered we have done a great deal of work at surface for the convenience and economical development of same. A cartroad has been made from the top of the hill to the entrance of the stope for carriage of timber, also mule-road for carrying ore taken from the vein to the reduction works, and large water courses made for carrying off the mountain torrents so as not to damage the works. As you will perceive, everything here is now in a fair way for working.

—A. W. Peill, Sept. 25: Fair progress is being made in connection with this machinery.

Mine captain's letter, dated Aug. 24: General Remarks: The ore has been derived from Bryant's new lode, and has ruled of better quality than when last reported on. Three stope are started on this lode, named respectively Nos. 1, 2, and 3, the No. 2 stope, so far, producing the best quality ore.—No. 1 Stope: The lode in this stope is large, in close juxtaposition to the fissure.—North Side of the Stope: The ground on this side is somewhat crushed by workings below (carried on in former times) having collapsed towards the south side; the branches are more defined. The ore from this stope is inferior to that from No. 2 stope.

No. 2 stope is a stope on the same lode, southward of No. 1 stope. The branches, though smaller in size, are well defined, and of far better quality than those in No. 1 stope.

On the south side of this stope, within 2 ft. of the bottom, a small vein has been met with from which we have obtained 17 boxes of ore, which, though not good boxwork, is worthy to be treated separately. The vein is composed of conglomerate of quartz, jactinga, and dark yellow clay, averaging about 12 in. wide by 8 in. thick, but very bumpy. This, we need not remark, is a very promising feature, and the branch or vein may become rich at any moment.

No. 3 stope was started on the 23rd, and is south of No. 2 stope. The branches are well defined, and this stope looks promising. On the south part of these

stope an exploratory level has been started on this lode to test the same in a south-easterly direction. The branches of lode in this level, though small, are well defined, but so far of inferior quality. In the lower stope, in Bryant's, very little has been done since our last, and no alteration to note taken place.—No. 2 Incline Shaft: Fair progress has been made considering the vast amount of old timber to be dealt with. The shaft below continues full of stuff and broken timber.

No. 1 incline shaft is forked to 35 ft. below the 40; the shaft below is apparently full of stuff, and timberwork very defective; this is being cleared as quick as possible, but notwithstanding all our most strenuous exertions it is very slow work, the stuff being very fine and troublesome for handling. In the new level three sets have been put in. Vivian's shaft is undergoing repairs at intervals when force is available.—Drainage: Forked the mine to 36 ft. below the 40, and cleared No. 1 incline to this point; the shaft below is full of debris as far as can be judged.—Machinery: Packed plunger-lift and stuffing-box, and examined both valves of the same, changed box of puppy lift, repaired one roll in incline, changed lining in the same, and other minor repairs made. Machinery all working well. Regos kept clean and attended to. A large force is employed on Dawson's wheel and projected machinery, fair progress is being made. The shaft below continues full of stuff and broken timber.

—RICHMOND CONSOLIDATED.—Telegram from the mine at Eureka, Nevada: Week's run, one furnace, \$35,000, from 350 tons of ore. Refinery, \$35,000.

—R. Rickard, Sept. 3: Since my last explorations in the mine have been carried on vigorously, and with very good results. The 200 cross-cut has been driven forward into a wide lode, the part carried being worth 1 1/2 to 2 tons per fathom. The stope in the back of this level, west of the winze, is worth 2 tons per fathom. The stope east of winze is worth 3 tons per fathom. The 206, on the line of the shaft, is worth 1 1/2 ton per fathom. The stope in back of this level, 8 fms. from the shaft, is worth 2 1/2 tons per fathom. The 206 west is in a lode 4 ft. wide, yielding 1 ton per fathom. Other points as last reported on.—Pump Sump: The men are cutting ground, and preparing to fix a pump about 15 fathoms below the boat level; when this is completed we shall cut a proper winze flat at the said depth, and go on sinking on the bunch of the ore now in the bottom, valued at 3 to 4 tons per fathom. I intend also to mark out the new shaft from surface to go down 48 ft., with favourable indications for striking ore. All our prospecting work is looking very favourable. All machinery, both in mine and furnaces, is working smoothly.

PLACERVILLE.—T. Price, Sept. 3: Mr. Courtenay and myself have just returned from Placerville. I will now briefly state the condition of things in general. Firstly, the erection of Courtenay mill, which is the name I have given to the mill now being erected. We found that in order to secure the best possible location for the mill it was necessary to purchase about 3 acres of land, which I have done; deeds and all have already passed. I also found that about the same quantity of surface land immediately adjoining the shaft did not belong to us; this also has been purchased. These purchases, and the absolute necessity of same to us, Mr. Courtenay will explain in detail on his return. Best assured that they would not have been made unless it was imperative that they should. (that is the lots) belong to us. The old St. Lawrence mill has been torn down, and is now at our mill site, and will be tomorrow under way of reconstruction, as the foundation is now ready. The total weight of the ironwork is 40 tons, and was removed at a cost of \$8 per ton. In the tearing down we have saved 45,000 feet of lumber, which has been removed at a cost of \$10 per 1000 ft. To-morrow morning Mr. Thomas, the superintendent, goes over to the St. Lawrence to clear up around the old batteries. In one word, the old mill is torn down, hauled over to the mine, and the work of construction commenced. I expect it will be rebuilt by the 15th day of October.—Secondly, Elephant Stamp or Mill: The last piece of machinery only reached here last Friday, the 29th ult., and has reached Placerville to-day. The whole will be built in and working order by the 15th and 16th inst.; in the meantime I have nothing more to say.—Thirdly, the Mine: On Monday night, the 2nd inst., the 500 ft. level north had been driven 33 feet, and encountered the pay-shoot; the quartz looked well, showing free gold, freely in fact as good as any I have ever seen. The small seam of quartz that I called your attention to in the 500 ft. level cross-cut, and some 5 ft. west of the main vein, and upon which we have continued the 5th level, although only 3 in. 6 in. wide, yet is very rich, and has continued to be uniform in a fair manner.

—T. Price, Sept. 3: We have nearly finished picking the outside heaps, which have turned out about 11 tons of pure blende, fit for market without dressing. We expected to have had more, but we find the greater portion of the heaps have lead mixed with the blende, which, of course, will not do to sell without dressing and separating. We have set men to stope west of cross-cut, and will make up a parcel of 25 to 30 tons as soon as we can.

—UNITED-VAN CONSOLS AND GLYN.—James Rook, Sept. 3: The adit driving north on cross-cuts towards the Van or north lode is about

strong symptoms of our being in close proximity to it. The cleavage of the ground, which is now dark clay-slate, is east and west, with a little lead disseminated in the fissures; the forebreast is now emitting a great quantity of water, which leads us to believe that we shall intersect the lode at an early date. The 50, east of Murray's shaft, on north part of the lode, consists of strings of lime, spar, and barytes, with veinstone congenial to the production of lead. This drivage will soon be under some valuable ground wrought in the 15 fm. level, where improvement may be looked forward to. In the 50, west of Murray's, we are cross-cutting the lode. We can see 23 ft. of its width, which, although not rich, contains lead throughout; the forebreast is very wet. We consider this indicative of ore being found against the hanging-wall. This point is 29 fms. west of shaft, and we think the ground will pay us well for stopeing the whole distance, which we shall resort to as soon as we have completed a tramroad around the shaft for discharge of stuff; this will soon be accomplished. The tributaries are still working with energy, and we believe earning fair wages. They are daily bringing their produce to surface, and we are in the act of cleaning it for market. Machinery, &c., in good order, and all work progressing with the utmost regularity.

VAUGHAN.—Sept. 24: In the stope over the 30, west of the cross-cut, the lode is large, yielding for the width on an average 1 1/2 ton of lead ore per fathom; this point is now suspended, and the rest being cleared. In the winze started under the 30 west the part of the lode carried is hard for exploring, and yields about 1 1/2 ton of lead ore per fathom. We purpose putting four men to drive the 30 west as soon as we have cleared the rest of the lode. The drawing and dressing are steadily carried forward, with a good supply of water.

WEST CRAVEN MOOR.—David Williams, Sept. 25: Blackhill adit level has been extended east of new Blackhill shaft 101 fms., and is within 9 fms. of reaching the perpendicular of new west shaft. A stope in the back of the level is worth 20 cwt. of lead ore per fathom. Other points progressing favourably.

WEST TOLGUS.—Sept. 25: The lode in the 155, west of Taylor's shaft, is 5 ft. wide, and yielding 2 tons of ore per fathom. The lode in the No. 2 winze, sinking in bottom of this level, is 4 ft. wide, yielding 1 1/2 ton of ore per fathom. The ground in the 135 cross-cut south is improved a little for driving, and the men are making good progress.

WEST TOLGUS.—Sept. 25: The winze sinking below the adit level on the Sozen lode is down about 4 1/2 fms.; it continues to produce tin throughout, and is altogether a kindly lode, over 4 ft. wide. I have every confidence in it becoming a very productive lode as it nears the junction.

WHEAL CREBOR.—John Andrews, Sept. 23: At the 120, west of winze, we are still engaged cross-cutting the lode, which is 20 feet wide, and worth 100 ft. per fathom. The lode in the 125, west of cross-cut, is 6 ft. wide, and yielding 4 1/2 tons of ore per fathom. The lode in the 125, east of cross-cut, is 4 ft. wide, yielding 3 tons of ore per fathom. There is not much change to notice in any of the stope in this part of the mine available for stopeing. The lode in the 95, west of shaft, is split up and disordered, and producing nothing to value. The men have intersected some cross branches to-day in the 65, west of shaft; which we hope will prove to be the cross-course, but we shall be able to say more about it in a few days.

WEST VOR.—S. Harris, Sept. 25: The winze sinking below the adit level on the Sozen lode is down about 4 1/2 fms.; it continues to produce tin throughout, and is altogether a kindly lode, over 4 ft. wide. I have every confidence in it becoming a very productive lode as it nears the junction.

WHEAL UNY.—William Rich, Sept. 23: The 172 fm. level, east of No. 1 shaft, is opening up moderately productive ground; worth 1 1/2 ton per fathom. In the 25, west of No. 2 shaft, the lode has fallen off in value during the past week. The 25, south of No. 3 shaft, has passed through a small branch, but it does not contain any ore. In No. 1 shaft, below the 25, good progress is being made with the sinking.

ALMILLOS.—Sept. 17: In the 20, west of San Felipe, the lode has very much improved in the past week, now worth 1 ton per fathom. The lode in the 100, east of Taylor's, is larger, and is producing a little lead. In the 115, west of Taylor's, the lode is not quite so rich as it has been; its present value is 2 1/2 tons per fathom. The lode in the 100, west of San Adriano, the lode produces stones of ore, and has a better appearance. The lode in the 60, east of San Victor, does not contain ore enough to value it. In the 70, east of San Victor, the lode is similar to the one in the level over it immediately before it struck into a rich course of ore. The granite in the 70, east of San Victor, is becoming harder. In the 50, east of Judd's cross-cut, there is a large and promising lode, worth 1 ton per fathom. In the 70, west of J

Rittinger Jig), which works very well and very cheaply. The Cornish Jig is no longer in use on this coast. The directors have received the following telegram from Mr. J. H. Clunes, dated July 26:—Profit for the second quarter of 1879, £6400. I have remitted you bullion, £3500.

With this week's Journal a SUPPLEMENTAL SHEET is given which contains: Original Correspondence: Washing Furnace Smoke; Detection of Fire-Damp in Mines; Trials of Safety-Lamps at Wigan; Safety-Lamps; Cakemore, Causeway Green, Lower Holt Brickworks and Colliery Lamps; (H. J. M'Gillivray); Treatment of Tin Ores (W. Nance, C. Thomas); the Smelters—Copper, Tin, and Lead; the Mechanical Treatment of Ore: the Monopoly of the World's Consumption of Steel by Swedish Lapland (W. J. Thompson); Colombian Mines Company; Mines of Utah—the Bingham Canyon (W. Bredemeyer); New Quebrada Company; Gas-Power Locomotives for Tramways; the Duty of Cornish Pumping Engines (G. Rickard); Llanidloes District, and Mining Depression Penstrithul Consols Mine, Wheal Crebor, and the Neighbourhood; Cornish Mining—the Gwennap District: its Past History (C. Bawden); Llanidloes Mining (J. L. M. Fraser); Meetings of Public Companies; West Pateley Bridge, Wheal Grenville, Newton, Coal in Brazil, &c.

IRON AND STEEL INSTITUTE.—Our report of the proceedings at Liverpool is deferred until next week's Journal, when we shall give all the information elicited at this important meeting.

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The Mining Market: Prices of Metals, Ores, &c.

METAL MARKET—LONDON, SEPT. 26, 1879.

IRON.	£ s. d.	£ s. d.	TIN.	£ s. d.	£ s. d.
Pig, G.M.B., f.o.b., Clyde...	2 16 0	—	English, ingot, f.o.b...	75 0 0	—
Scotch, all No. 1 ...	2 16 0	3 5 0	bars, refined ...	75 0 0	—
Bars, Welsh, f.o.b. Wales	4 15 0	5 0 0	bars, refined ...	77 0 0	—
" in London	5 0 0	5 10 0	Australian	73 5 0	73 10
" Stafford,	6 5 0	7 0 0	Banca	75 0 0	(nom.)
" in Tyne or Tees	5 5 0	5 10 0	Straits	73 5 0	73 10
Swedish, London...	8 10 0	15 0			
Rails, Welsh, at works	5 0 0	—	COPPER.		
Sheets, Staff., in London	7 10 0	7 15 0	Tough cake and ingot.	63 0 0	64 0 0
Plates, ship, in London	5 12 6	5 15 0	Best selected	64 0 0	65 0 0
Hoops, Staff.	7 2 6	—	Sheets and sheathing.	68 0 0	69 0 0
Nail rods, Staff., in London	6 0 0	8 5 0	Flat Bottoms	71 0 0	72 0
STEEL.			Wallaroo	66 10 0	—
English, spring	13 0 0	19 0 0	Burra, or P.C.O.	65 10 0	—
cast	30 0 0	40 0 0	Other brands	62 0 0	—
Swedish, keg	13 0 0	—	Chili bars, g.o.b.	58 5 0	—
" fag. ham.	15 0 0	—	PHOSPHOR BRONZE.		
LEAD.			Bearing metal	£105 0 0	—
English, pig, common	14 17 6	—	Other alloys	£110 0 0	125 0 0
" L.B.	15 0 0	—	BRASS.		
" W.B.	(nom.)	—	Wire	6 1/2 d.	—
sheet and bar.	15 15 0	—	Tubes	8	—
" pipe	16 5 0	—	Sheets	8 1/2	—
" red	16 5 0	16 10 0	Yel. met. sheath. & sheets	5 1/2	6
" white	25 0 0	26 0 0	Nails composition	—	—
" patent shot	18 0 18 10	10 0	TIN-PLATES.*	per box.	
Spanish	14 12 6	14 15 0	Charcoal, 1st quality	1 2 0	(nom.)
NICKEL.			2nd quality	1 1 0	—
Metal, per cwt.	18 0 0	20 0 0	Coke, 1st quality	0 18 0	—
Ore, 10 per cent. per ton	24 0 0	26 0 0	2nd quality	0 16 6	—
QUICKSILVER.			Black	per ton	16 10 0
Flasks of 75 lbs., ware...	6 2 6	—	Canada, Staff., or Gla.	11 0 0	12 0
SPELTER.			at Liverpool	14	0 0 12 0
Silesian	18 17 6	19 0 0	Black Taggers, 450 of 1	30 0 0	—
English, Swansea	19 0 0	—	14 x 10	—	—
Sheet zinc	24 10 0	25 0 0			

* At the works, 1s. to 1s. 6d. per box less for ordinary; 10s. per ton less for Canada; IX 6s. per box more than 10 quoted above, and add 6s. for each X. Terne-plate 2s. per box below tin-plates of similar brands.

REMARKS.—The Metal Market has again become rather more animated, not so much from any considerable increase in the legitimate trade, but chiefly from the action of speculators, for as yet there is no reason for believing that a permanent substantial recovery in the trade has been established; for, in fact, the statistical position of most metals has undergone no material alteration of a favourable description, and consequently, there is but slight cause for sellers demanding such enhanced rates. The result of violent fluctuations in quotations invariably leads to serious losses to many houses, and not unfrequently results in failures, and it is to be feared that the wild speculation that is now going on will terminate in the same unsatisfactory but usual manner, unless a speedy check be put upon it. The speculative feeling may, perhaps, for a short period be beneficial to sellers, in helping them to get out of some portion of their superfluous stocks; but there can be no doubt that while it lasts it proves most injurious to legitimate business. It is evident that speculators are attempting too much, for regular consumers and shippers hold aloof at the advanced prices, as they do not at present perceive any strong basis upon which the upward movement rests. The rise in the prices of the raw material is affecting the interests of manufacturers, as orders cannot be obtained at anything approaching equivalent rates to what they have to pay. Another month or six weeks will pretty well decide the value of metals in the immediate future. Already a great deal too much appears to have been made of the American demand, although it has proved a great boon, yet it can scarcely be expected that it will continue at the increased prices. In respect to other markets there are no particular reasons for anticipating any vast improvement, and, therefore, unless supplies are reduced a reaction may perhaps ensue before speculators have calculated upon, and as soon as the speculative feeling in our market subsides there will be little left to support the markets. Great caution is necessary to be observed by all who wish to keep clear of losses and avoid bad debts.

COPPER.—During the greater part of the week this market has been in an excited condition, and prices have advanced. The upward movement has been effected solely by speculators, legitimate business at present not admitting of any rise whatever; consequently, there seems little probability that the enhanced quotations will be permanently maintained, for all the speculation in the world can not reduce the actual stock, and until such a time as a sensible reduction is made in the enormous total stock, and which can only be brought about by increased consumption and diminished supplies, there is not the remotest chance of higher prices being generally established. Probably next week further charters will be announced, and fresh statistics published. Should they be unsatisfactory, what will then be state of the market? The animated feeling will doubtless give way to quietude, and the firmness with which sellers hold their quotations will be succeeded by comparative ease. Holders for the time being are doubtless hopeful of better times; but, owing to the buoyancy of the market not being established on any firm basis, it is evident that too much confidence should not be placed in the stability of prices, and holders would, therefore, do well to consider the advisability of realising while the speculative feeling exists, as they may find great difficulty in selling when it subsides. The value of manufactured has also increased, and strong sheets have been quoted up to 6s. The price of yellow metal has risen to 5s 1d to 6d per lb. The Indian demand is completely checked by these enhanced rates. At the Swansea public ticketing, last Tuesday, 1855 tons of ore were sold, at an average of 10s. 10 1/2 d. per unit.

IRON.—This trade cannot be reported in a wholly satisfactory condition, as there are still a number of works entirely unemployed, and while this continues to be the case it is perfectly evident that the improved demand is not general; nevertheless, there can be no doubt than in some quarters a better feeling exists, and the market for the raw material is very active, for prices are constantly advancing for pigs and old iron. This, of course, makes sellers of manufactured iron firmer in their quotations, although the demand for the latter does not permit of any rise, and buyers in most instances positively refuse to pay any advanced rates. The trade at South Wales continues to show a slight improvement, and the various establishments are said to be turning out quantities fully up to their usual average. The American demand appears to be well maintained. Shipments are very fair, and the clearances for last month compare favourably with those for the same period of last year. According to the statistics recently to hand, last month Newport cleared 5113 tons of iron, against 5129 tons in August, 1878; Cardiff, 13,852 tons, against 4534 tons; and Swansea, 1080 tons, against 666 tons. It will be observed that the shipments from Cardiff compare very satisfactorily, and those from Swansea show a slight increase. There is scarcely so much activity observed on the Staffordshire markets, owing to makers receiving comparatively few orders. The quietude is partly attributable to the increasing gloom in the East.

A further reduction of 7% per cent. in men's wages has been resolved upon by some establishments. This course is said to be necessary, owing to the dulness of the times, and it is stated that sellers by adopting this course intend allowing buyers extra discount in the hope of obtaining further orders. The threatened strike in the wrought nail trade has for the present been averted, though masters are unable to make any advance in their men's wages. Some of the Sheffield makers are said to be executing some fairly large orders from the United States, and some large contracts for manufactured are reported to have been made with continental houses. The demand for rails is improving, and prices are more re-

munerative now than was the case a month or two ago. Prices for other descriptions show little alteration, nevertheless sellers in most instances are firm at ruling rates. The market at Leeds remains inactive, and the demand for best Yorkshire iron shows little or no improvement, and notwithstanding the restricted production stocks are stated to be still on the increase. Most of the works are going but four days per week, and the long expected increased demand for general merchant iron and all other descriptions has not yet taken place. The Middlesbrough market is reported much stronger, and prices are rising, fully 1s. per ton more having been demanded by sellers. Buyers, however, are rather shy, and do not encourage sellers to continue in their excited course: 3s. has been paid for No. 3, and most makers quote 3s. 6d. to 3s. for that description, though there are some who have been asking 4s. for delivery during the first half of next year. Shipments have improved, the total exports for last week being about 25,000 tons, of which Scotland took nearly 9000 tons. About 1500 tons, and some makers are expecting orders on American account for 25,000 or 30,000 tons.

The local requirements are expected to show a falling off during the time that the millmen refuse to return to work, as the works will be stopped until such a time as the men will recommence work. But owing to the great distress that prevails in this district it is thought that they will not remain out on strike for any very long period. The manufactured trade is no healthier, though prices are rather stiffer owing to the dearness of pigs. Ship-plates are quoted at 5s. 2d. to 5s. 6d. to 5s. 8d., and bars and angles at about 5s. per ton. The Glasgow warrant market has remained very irregular and excited, and a large business has been transacted at prices fluctuating between 5s. and 5s. To-day's price being 5s. per ton.

SHIPPING.

For the week ending Sept. 20, 1879 Tons 15,650

For the week ending Sept. 21, 1879 7,956

Increase 7,694

Total increase for 1879 80,188

Imports of Middlesbrough pig-iron into Grangemouth:—

For the week ending Sept. 20, 1879 8,850

For the week ending Sept. 21, 1879 4,790

Increase 4,060

Total decrease for 1879 37,510

FURNACES.

In blast Sept. 20, 1879 65

In blast Sept. 21, 1879 92

TIN.—There is not very much change in the state of this market, nevertheless sellers have been firm in their prices throughout the week, and in some instances have advanced them to the extent of 5s. or 10s. per ton, and up to 7s. has been paid for arrival. The demand on the whole keeps fairly good, and owing to the continuance of a limited supply, the next statistics may prove even more favourable than those published on the 31st ult. This metal may shortly still further improve in value, not so much from any speculative movement as from a fair consumptive demand, for a termination appears to have been put to the dispute between tin-plate makers and their men, and as tin-plates are now becoming in better demand, it necessarily follows that an increased quantity of tin will be required to meet the demand. It was about this time last year that the price of this metal was at the lowest figure it ever touched, and since then a rise of fully 24% per ton has been taken, and should supplies for the next year come forward in as limited quantities as those from Australia have during the past few months, it may reasonably be expected that prices will advance at least in the same proportion as they have since last autumn.

SPELTER.—A fair business continues to be doing, but prices show little alteration; nevertheless sellers display no eagerness to press sales at current rates, and it would, therefore, almost seem that they believe prices will still further advance.

STEEL.—This market remains very quiet, without any evidence of improvement in value for some time to come.

QUICKSILVER has been reduced to 6s. 2d. per bottle.

LEAD.—Enquiries for the most part have proved of a limited character, but sellers have upheld their prices with steadiness, only slight concessions occasionally have been submitted to.

TIN-PLATES.—These are in good demand, and prices are stiffer. Some makers are receiving large orders, chiefly on American account.

Messrs. BROOKER, DORE, and CO.—The increased values of metals have during the past month been well maintained, and in most instances prices have still further advanced.—BALDWIN'S SHEET IRON: This best class of iron has been in good demand, and should any change be made in prices next month it will, of course, be in an upward direction.—TIN-PLATES: Firm.—GALVANISED IRON: There is a steady demand for this article, and we anticipate that it will be increased when buyers see that there is no probability of a relapse in prices. Spelter keeps firm at a minimum of 18s. 17s. 6d. to 19s., and as black sheets will certainly be no cheaper this side of Christmas, we do not think that galvanised iron can be lower. The advice from this side will no doubt assist holders in colonial markets to clear their stocks and make room for fresh imports, so that we now look for a gradually improving trade.—LEAD: Prices are firm at 7s. 6d. to 10s. advance.—ZINC: About 20s. dearer.

Messrs. FRY, JAMES, and CO.—A steady tone of market has prevailed for the most part.—COPPER became less in demand, and receded somewhat in value about ten days ago, but has again rallied in the last few days. The charters advised from Chile for the first half of this month were 2600 tons, and it was this news which caused the pause in the market which is now wearing off.—IRON has been subject to great speculative dealing in Scotch pig, which is now about 7s. per ton dearer than it was a fortnight ago, but manufactured iron has been but little if at all affected by this movement.—TIN has had a relapse in prices since our last, having receded last week about 40s. per ton in foreign, but during this week the loss ground has been fully recovered.—SPELTER shows continued firmness, but without much doing.—LEAD remains steady, with a slight tendency to become dearer.—TIN-PLATES are without change.

The MINING SHARE MARKET has been particularly active this week, and a large amount of business done in mines generally. The settlement of the fortnightly account, which is occupying a good deal of attention on the part of the dealers, commences on Saturday, and is likely to be the heaviest known for years. The mines mostly dealt in have been Wheal Crebor, Tankerville, Parys Corporation, Devon Great Consols, East Caradon, Marke Valley, Leadhills, Herodsfoot, Wheal Grenville, Wheal Basset, and a few others.

TIN is firmer, and a further rise is expected in the standard for ore after the Banca sale, which takes place on the 30th. Tin shares have also been better, and more dealt in. Carn Brea are quoted 31 to 33; Dolcoath, 32 to 33; Tincroft, 10 to 10 1/2. West Bassett have advanced to 5s. 5s. Wheal Basset, 2 to 2 1/2. East Lovells have been in demand, and leave off 3 to 3 1/2. Cook's Kitchen, 2 1/2 to 2 1/2; East Pool, 14 to 14 1/2; South Condurrow, 12 to 12 1/2; South Frances, 8s. 1/2 to 9s. 1/2; West Frances, 5s. 1/2 to 5s. 1/2; Wheal Agar, 3 to 3 1/2; Wheal Grenville, 4s. 1/2 to 5s.; Wheal Kitty (St. Agnes), 2 1/2 to 3 1/2; Wheal Peveril, 11s. 1/2 to 12s.; Wheal Umy, 2s. 1/2 to 3s.

COPPER is very firm, and advancing in price, and there was again an advance in the standard for ore at Swansea on Tuesday. Devon Great Consols opened at 2 to 2 1/2; and have been more in demand, and have advanced to 3, 3 1/2. Wheal Crebor have again been very largely dealt in. They opened on Monday at 8 to 8 1/2. On Tuesday the mine was inspected by several independent agents, after which shares were 9; on Wednesday 9 1/2 to 10, and they leave off 9 1/2 to 10. The new lode at the 120 is still worth 100% per fathom. Same lode in the

accordingly allotted, and the necessary works and machinery are to be erected with all possible dispatch.

Van, 15 to 16; no change is reported from the mine; everything is going on as satisfactorily as usual. Frongoch, 1½ to 1¾; a meeting has been called for the purpose of sanctioning the issue of the balance of capital held in reserve: 100 tons of blende have been sold this week at 3s. 16s. 6d. per ton. The mine is stated to be looking well. Grogwinion, 2½ to 3; 100 tons of lead (the usual monthly parcel), were sold on Thursday at 9s. 16s., being a good advance in price. All operations progressing favourably. Caron, 2 to 2½; work at the mine is being pushed on with much vigour, and the prospects we are glad to learn are good. Wye Valley, 1 to 1½; a parcel of 50 tons of lead has been sold at 9s. 6d. per ton. This is an against 40 tons for several months past. A further quantity will be got ready forthwith. West Wye Valley, 1 to 1½. Red Rock, 1½ to 2; the whole of the fresh capital is stated to be now subscribed, and the work of development of the eastern ground will, therefore, be pushed on interrupted. A parcel of 40 tons of lead has been sampled for sale next week.

Mineral Corporation, 11½ to 12½; nothing of importance is reported this week. The promising character of the Hafna Mine is being taken advantage of to launch other mines on the D'Ershy mountain, and it is remarked that with the improved prices now obtainable for lead and blende ores, coupled with the fact that the facilities offered for working the mines by adit levels, which avoids the expense of steam and pumping, makes the whole district very attractive. A detailed report is promised next week.

Gwernymyndd, 4 to 4½; notwithstanding the unprecedented floods which have prevailed during the last three months in the Mold district, the Fron Fawr Mine has been successfully unwatered without accident of any kind, thereby proving the 85-in. engine to be master of the situation during an unparalleled period of storms and inundations. The agent writes that the roof had burst in the north cross-cut from the engine-shaft, bringing down lumps of good loose ore of 50 or 60 lbs. weight each. He suggests that the late company missed the ore ground by driving on the floor instead of the roof; if so a good quantity of ore will be opened. It is remarked that this looks like an important discovery. The previous company are said to have spent about 60,000*l.*, mainly with the view of proving these bottom measures.

Pateley Bridge, ¾ to 1; the various ends are producing about the usual quantity of ore, and matters are progressing favourably both underground and at surface.

The subjoined is the list of the closing quotations:—

Carne Brea, 3½ to 3½; Devon Great Consols, 2½ to 3; Dolcoath, 31 to 33; East Cardon, 1 to 1½; East Van, 1½ to 1½; Gwernymyndd, 4 to 4½; Glenroy, ¾ to ¾; Great Laxey, 16 to 17; Leadhills, 2½ to 2½; Marke Valley, ½ to ¾; Pateley Bridge, ¾ to 1; Roman Gravels, ¾ to ¾; Tankerville, ¾ to ¾; Tin-croft, 10 to 10½; Van, 15½ to 18½; West Bassett, ½ to ¾; West Chiverton, 2 to 2½; Wheal Crebore, ¾ to 10; Wheal Grenville, ¾ to 5; Almada and Trito, ¾ to 5; Birdseye, ¾ to ¾; Blue Tent, ¾ to 2; Canada Gold, 2 to 2½; Cape Copper, 2½ to 2½; Chontales, ¾ to ¾; Colorado United, 1½ to 1½; Don Pedro, ¾ to ¾; Eberhard and Aurora, 1½ to 2; Exchequer, ½ to ½; Fronton and Bolivia, 2½ to 2½; Hultafall, ¾ to 2; Javall, ¾ to ¾; Kapanga, ¾ to ¾; New Querida, 2½ to 2½; Nouveau Monde, ¾ to ¾; Pestare, 2s. to 4s.; Port Phillip, ¾ to ¾; Richmond Consolidated, ¾ to ¾; St. John del Rey, 25 to 25; Sierra Buttes, ¾ to 2; United Mexican, 2½ to 2½; Ruby and Dunderberg, 1½ to 2; Placeerville, 2½ to 2½.

At the Swansea Ticketing, on Tuesday, 1955 tons of ore were sold, realising 9801*l.* 14s. 6d. The particulars of the sale were—Average standard for 9 per cent. produce, 79*l.* 8s. 4d.; average produce, 9 3-16ths; average price per ton, 51*l.* 0s. 3d.; quantity of fine copper, 180 tons 13½ cwt. The following are the particulars of the two last sales:—

Date. Tons. Standard. Produce. Per ton. Per unit. Ore copper. Sept. 2 2179 ... 276 18 3 ... 8½ ... £4 7 7 ... 10s. 3½d. ... £51 8 10 Sept. 23 1955 ... 79 8 4 ... 9½ ... 5 0 3 ... 10 10½ ... 54 5 0 Compared with the last sale, the advance has been in the standard 2½ tons, and in the price per ton of ore about 5s. The Betts Cove ore gave a produce of 8½, and realised 10s. 9d. per unit; Berehaven, produce 8½, per unit 11s. 5d.; Union, produce 10½, per unit 10s. 10d.; and Caveira, produce 9½, per unit 10s. 2½d. There will be no sale on Oct. 7.

CORNISH MINE SHARE MARKET.—MR. JOHN CARTER, Camborne (Sept. 25) writes—Prices have steadily improved during the week in the Cornish Share Market, and a fair amount of business continues to be transacted. The closing prices at Four o'clock this afternoon were—Botallack, 20 to 25; Carn Brea, 31 to 32; Cook's Kitchen, 2½ to 3½; Dolcoath, 32½ to 33½; East Cardon, 1½ to 1½; East Lovell, 3 to 3½; East Pool, 14 to 14½; Herodsfoot, 2 to 2½; Marke Valley, 12½ to 17½; Tin-croft, 10 to 10½; Van, 15½ to 18½; West Bassett, ½ to ¾; Wheal Grenville, ¾ to 5; Almada and Trito, ¾ to 5; Birdseye, ¾ to ¾; Blue Tent, ¾ to 2; Canada Gold, 2 to 2½; Cape Copper, 2½ to 2½; Chontales, ¾ to ¾; Colorado United, 1½ to 1½; Don Pedro, ¾ to ¾; Eberhard and Aurora, 1½ to 2; Exchequer, ½ to ½; Fronton and Bolivia, 2½ to 2½; Hultafall, ¾ to 2; Javall, ¾ to ¾; Kapanga, ¾ to ¾; New Querida, 2½ to 2½; Nouveau Monde, ¾ to ¾; Pestare, 2s. to 4s.; Port Phillip, ¾ to ¾; Richmond Consolidated, ¾ to ¾; St. John del Rey, 25 to 25; Sierra Buttes, ¾ to 2; United Mexican, 2½ to 2½; Ruby and Dunderberg, 1½ to 2; Placeerville, 2½ to 2½.

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GAS SHARES.—The principal business in these shares, according to this evening's report of Mr. W. L. Webb, of the Stock Exchange and Finch-lane, has been in Bombay (Limited), 61½ to 62½; Continental Union, 18½ to 18¾; Commercial, 18½ to 18¾; Gas Light and Coke, A, 181 to 181½; ditto, ditto, 4th issue, 17½ to 17½; ditto, ditto, 5th issue, 16½ to 16½; ditto, ditto, C, 10 per cent. prof., 208; ditto, ditto, E, 10 per cent. prof., 209½; ditto, D, 10 per cent. prof., 208½ to 210; ditto, ditto, H, 7 per cent. max., 133 to 133½; Imperial Continental, 17½ to 17½; Malta and Mediterranean, 1¾; Oriental New, 47½; Rio de Janeiro, 27½ to 27½. All gas stock have again been strong and enquired for, except Gas Light and Coke, A, ordinary. For closing prices see list on last page of Journal.

INSURANCE SHARES have, according to this evening's report of Mr. W. L. Webb, of the Stock Exchange and Finch-lane, been dealt in as follows: Alliance British and Foreign, 28½; Commercial Union, 18½ to 18¾; London Fire and Life, 15½ to 15½; Law Fire, 13; Marine, 8½ to 8¾; Ocean Marine, 6½ to 6½; Rock Life, 8½ to 9½; Phenix, 311 to 312. No change in insurance except Rocks, which have improved 5s. more this week. For closing prices see list on last page of Journal.

TRAMWAYS.—The closing prices of this evening, as quoted by Mr. W. Abbott, of Tokenhouse-yard, are given in tabular form in the last page of the Journal.

CHEMICAL MINERALS, AND METALS.—Mssrs. J. Berger Spence and Co. (Sept. 20).—Alum: Loose Lump, 6½ to 6½; 2s. 6d.; ground, 6½; 15s.—Arsenic: Best white powdered, 10½; Bleaching Powder, 6½; Borax: Refined English, 36½; Copperas: Green, 45s.; white, 6½; 15s.—Copper: Sulphate, 15½ to 18½; ditto, ditto, 10½ to 10½; Nitrate of Lead, 30½; Nitrate of Soda: 14s. 6d. to 14s. 9d.—Potash: 6d. to 10½d.—Sulphate: Refined English, 23½ to 25½; Soda: Cream Caustic, 8½; Sulphate of Zinc, 8½; 10s.—Sulphur: 10s. 6d. to 12s. 6d.—Barytes: Carbonate, 90s.—Brimstone: Best thirds, 5½; 2s. 6d.—China-Clay, 35s.—Manganese: Sulphate, 16½; 10s.—Mineral White, 40s.—Ochre, 5½; 10s.—Oxide of Zinc, 17½; 10s.—Talc, 5½; Umber, 70s.—Copper: Best Ingot, 64½; Lead: Best soft English, 15½; 10s.—Pig-Iron, 36s.—Spelter: English, 19½; Tin, 77½.—Hard Bell Metal, 43s. per cwt.—Cream of Tartar: Crystals, 103s.; powdered, 106s. 6d.—Charcoal: Best stick, 4½d. per bushel; field burn, 6d.—Globe Steam Boiler Powder, 16s. per cwt.—Naphtha: Miscible, 4s. 9d.—Resin: Common strained, 4s. 10½d.—Ultramarine, 50s. to 100s.

TANKERVILLE LEAD MINE.—One of the most important discoveries which has recently been made in any lead mine is that which has just been made in the pump sump sinking below the adit or boat level, some 22 fms. under this level, where a rich course of ore already, so far as can be seen, is valued at 4 to 5 tons—some say upwards of 6 tons—of lead ore per fathom, and very much like in appearance the top of another rich bunch of lead ore similar to that in the Tankerville lode, where that lode was worth 20 to 24, and 25 to 26 tons of lead per fathom, when the shares of the company advanced to over 20*l.* or 25*l.* per share, and from the workings on this lode about 60,000*l.* profit, or about 5*l.* per share, has been realised in about four to five years. We hear that last month's ore left a profit of about 300*l.* History, as the manager states, may repeat itself.

WEST PATELEY (Lead).—The meeting was held on Tuesday, under the presidency of Mr. Baxter, the Chairman of the company. As will be seen by the report of the proceedings, which appears in another column, the mine has thus far surpassed the most sanguine anticipations of those associated with it. The valuable discoveries recently made have caused considerable excitement among those who have been mining successfully in the district for many years. The manager states, upon the authority of the oldest miners, that no such ore body has been laid open within the past 20 years. The manager adds that there is no reason to doubt that it will continue. Up to the date of the meeting upwards of 25 fms. had been driven through a course of ore, in places worth 12 tons of lead ore per fathom, the general average exceeding 6 tons per fathom. This ore body has gone down in the sole of the level, where the manager has sunk a few feet to prove it; worth from 12 to 15 tons per fathom. Such a success has seldom been realised, and the shareholders may well be congratulated upon it.

BWLCH UNITED.—The plat or lode at the 100 fm. level is being cut, when a cross-cut will be put out to prove the lode. The shaft has been sunk between two portions of a large lode, the north part giving off a strong feed of water. An important discovery at this point is looked for, as the shaft is 30 fms. deeper than the levels. The winze from the 60 to the 70 is completed, and the driving eastward at the 70 has been resumed, and, in addition to the stopes, producing fine rocks of silver-lead ore, a specimen of which can be seen at the company's office, another discovery is looked for hourly. The drivage has not actually got under the deposit of ore seen and worked upon in the 60, but the lode is getting more mineralised as the miners

approach a shoot of ore seen in the level above. This will materially add to the known value of the mine and to its reserves.

GREAT LAXEY.—Our information received this week from the neighbourhood of the mines is exceedingly satisfactory, for not only greater progress being made in development, but the mines are improving, and all employed are working with renewed energy to make up in some measure for the lost time. The continual rise in blende and lead must be exceedingly cheering to the shareholders. The half-yearly meeting will be held in about 10 days.

BEDFORD UNITED.—It is satisfactory to see this mine again attracting notice, and perhaps a few facts showing the present position of the property may be interesting to distant shareholders and investors. The mine adjoins Devon Great Consols on the south, the lodes running parallel, and are precisely similar in character. The lode now being worked was formerly known as the Tavistock lode, but is now called the north lode. The shaft on this lode was commenced several years since by the late Captain James Phillips, and has been sunk to the depth of 150 fathoms from surface. It was started too far west from the first shaft on the Wheal Marquis lode (from which dividends amounting to nearly 60,000*l.*, on an outlay of 8000*l.*, were paid), being a considerable distance from where these large returns were made. Driving eastward has been persistently followed, with a view to reach the cross-course, about which large deposits of rich ore were found, and one of the ends is now within a short distance of the first, and inasmuch as this level has been almost continuously productive there can be no reason to doubt similar results being obtained as from the Wheal Marquis lode. The gradual improvement in the price of ore now being sold (notwithstanding the unprecedented low price of copper) is indicative that the lode is improving in quality as it approaches the parallel of the productive ground referred to as having been so profitable on the Wheal Marquis lode. The sett is bounded on the east by Wheal Crebor, which has within the last few weeks risen in value 40,000*l.*

TANKERVILLE.—The value of this mine is now probably greater than ever it was. It will be seen by the report this week that the drivages and stopes continue to be rich for lead, while the operations on the other lode lately begun at the sump shaft are also turning out very productive, the lode being valued at 3 to 4 tons per fathom. There are 100 tons sampled for the month, which are expected to give a profit.

EAST LOVELL.—The lode in the new shaft, at Sevorgan, is maintaining its strength and character, and there has been a demand for the shares.

EAST ROMAN GRAVELS.—There are only 9 ft. to drive to cut the lode at the 96. The mine looks well, and they have sold this week 25 tons of lead ore for the month, at 9s. 12s. per ton, an advance of 5s. over the price got last month. The dues are permanently reduced to 1-18th, the late company having paid 17*l.* per ton, equal to about 1-9th on the present price of ore.

JAVALI COMPANY.—The next meeting of shareholders will be held on Oct. 2. The directors, in their report for the six months ending June 30, state that 10,277 tons of ore were crushed at the mine, producing 7439*l.* This result is not so good as that for the corresponding period in 1878, there being a diminution of 886 tons in the amount of ore crushed, whilst its average value has fallen from 16s. 8d. to 14s. 6d. per ton. The net profit for the half-year, after paying the debenture interest, is estimated at about 200*l.*, which, together with the surplus in hand from last year, has enabled the board to pay off 1500*l.* of debentures. The directors congratulate the shareholders on the success of the financial measures agreed to in the month of April. Notwithstanding the issue of debentures in exchange for the so-called preference shares, the total annual interest henceforth payable will be but 180*l.* 5s. 9d., against 182*l.* 11s. 5d. before those measures were carried out. The results of the working for the month of July show a considerable improvement.

METAL MARKETS—HOME MINES.—The continued advance now taking place in the price of copper, tin, and lead, as well as blende, must be exceedingly gratifying to shareholders in our leading home mines. From all the information which we can obtain we feel justified in saying that during the next few months a further great rise in copper, tin, and lead, and probably blende, will take place which must of necessity enhance the value of all our leading metallic home mines.

THE PERRAN IRON MINES.—By direction of the Court of Stannaries, Perran Iron Mines were offered for sale by auction, on Thursday, by Mr. W. J. Clyma. The sale took place at the mines, and the bidders were started by Messrs. Harvey and Co. at 150*l.*, but Mr. Roe buck immediately made an advance upon the bid, and ultimately became the purchaser at 500*l.* The mines are at once to be put in full work. We are informed that it is the intention of Mr. Roe buck to proceed as soon as possible with the construction of a railway from Perran to Truro and Malpas, with the object of making the latter a port for the shipment of ore and the importation of coals.—West Briton.

IMPORTANT SALE OF SHARES.—At the Red Lion Hotel, Truro, on Thursday, Mr. W. A. Johns, auctioneer, disposed of a number of mine, railway, and other shares in Cornwall and Devon, the property of the Cornish Bank. Two shares in the St. Aubyn United Mines were knocked down to Mr. Carlyon. Mr. Penberthy, of Illogan, purchased 10 out of the 120 shares in New Cook's Kitchen Mine, offered for sale for 21s. 6d. each. There being only 15s. per share offered for the remaining 110, they were withdrawn: 24 Wheal Bassett shares met a similar fate, as 17*l.* only per share was offered by Mr. W. Tonkin. One share in Wheal Peovor was sold to Mr. Eastlake, of the Daniell Arms, Truro, for 21. 10s. —Cornish Telegraph.

Mr. James Simpson, sub-manager of the Chartered Bank of India, Australia, and China, has been appointed general manager of the Bank of Africa (Limited).

MR. JOHN OLDFIELD CHADWICK (Chadwicks, Collier, and Co.), Moor-gate-street, has been appointed official liquidator of the Great Western Iron Company (Limited).

The Sierra Buttes and the London and Californian companies have called meetings for Oct. 9.

DYNAMITE FUMES.—In the Marsh shaft of the Severn Tunnel two men have been killed by dynamite fumes. On returning to their working place when the usual time had elapsed after an explosion they were overpowered by the dynamite gas. They hurried to the mouth of the shaft and were pulled out, but although they had immediate attendance they died soon after.

GENERAL MARKETS.—There is very little to note this week in the foreign market. Egyptian Securities have been in demand, and show a considerable improvement in price; other foreign stocks show but little change, except Brazilians, which are lower. English railway stocks keep steady, but there is not much business doing in them just now. North British, Great Eastern, and Caledonians are rather lower for the week, the former having a fall of about 1½ per cent. American railways are firm, and there has been a good deal doing in Erie shares, &c. The miscellaneous market is very quiet, and no particular changes of note to record. In mines Crebors have reached 10, and Parva Mines have advanced to 15*l.*—W. H. H. WATSON: 1, St. Michael's-alley, Corn

NOTICES TO CORRESPONDENTS.

• Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be filed on receipt; it then forms an accumulating useful work of reference.

Received.—"E. G." (Golden, Col., U. S. A.)—"Shareholder" (Miners)—"Old Reader" (Bristol)—"Enquirer" (Portsmouth)—"R. B. C."—"W. Y."—"J. M."—"Gnome" (Nova Scotia); Next week—"E. A. S."—"J. W. H." (Sparkbrook); The letter has been forwarded—"Shareholder" (Bredbury); We could not publish the letter without the writer's name and address being appended—"D. F."—"Bona Fide" should write to the directors—"W. M." (Cannock Chase).

THE MINING JOURNAL,
Railway and Commercial Gazette.

LONDON, SEPTEMBER 27, 1879.

THE PRODUCTION OF GLASS FROM SLAG.

Considerable prominence just now is being given in several of the leading daily papers to the fact that glass is being produced from ordinary furnace slag, although the process is by no means new, for some of the inventions for the purpose have appeared a considerable time back in the columns of the Journal. The making of glass from the furnace refuse has long been practised abroad, whilst several of our own manufacturers of glass have also introduced slag in small quantities with the ordinary material, selecting the clearest portions, that are supposed to have the least iron in them, and pulverising them in water. Still the utilisation of slag, seeing that in the United Kingdom about 12,000,000 tons are annually turned out, occupying a vast area of valuable land, is of really great importance to our ironmakers, and the offer made to let parties have it for removing should be the means of vast quantities being taken for several purposes. It is now used for road mending as well as for converting into bricks and slabs for building purposes, but not to the extent that could be desired, and we recollect Mr. SMITH stating that if any person came to Barrow he would be glad to give him 750,000 tons of slag even for taking it away from the furnaces. It has been suggested that it would pay the ironmasters themselves to have glass-works on their own account directly connected with their furnaces, so that the molten slag could be made available and run direct to the glass-works, but this has not met with the approval of those most interested in it, who think that they have sufficient on their hands in working one trade that requires a great deal of attention. But makers of glass could not fail to be benefited, and that to a material extent, by the adoption of slag, which contains all the ingredients in a mass which they are obliged to have in detail. It is true that the glass made from the slag has not such a good colour as that made from the ordinary material used, but this, there is every reason to believe, could be overcome by certain additions of a chemical nature. At present greater or less opacity, or brightness and varieties of colour, are obtained by the addition of oxides, alkalies, and metals before the batch is thrown into the melting pots. The beautiful semi-opalescent peculiar yellowish-green colour, so extensively admired in the production of scent-bottles, door-knobs, and other fancy articles, is the result of the admixture of oxide of uranium and copper to the raw material before melting, the ever-changing appearance it presents being caused by differences of reflection, according to the variation in the thickness of the glass. The slag glass, on the other hand, owing to the manganese and iron oxides contained in it, causes a more or less green, brown, or amber colour, but this, it is said, could be easily overcome.

M. ROSSENEGGER, of Innsbruck, who has paid a good deal of attention to the subject, states that he can reduce the dark colour by calcining the granulated slag so as to make the glass quite clear. But where a glass of a certain colour is required the colouring matter in the slag would be an advantage in many instances. By M. ROSSENEGGER's process the slag, after being analysed, is crushed by mechanical means, or granulated in a hot state by means of water, the certain quantities are put into the vessel or pot, with sand, lime, and such other ingredients as may be necessary to give the mass the same composition as contained in glass made by the old process. If the slag is used in its melted state it is taken direct to the vessel or pot, and in that case the additional materials are placed in layers between the slag. The slag, in fact, is a base, and being the largest percentage of all the ingredients, causes the entire mass to melt in much less time than would be the case where the ordinary raw material only was used. The component parts of glass vary a good deal according to what it is intended for, and we recollect some years since of M. SCHONBEIN inventing what was termed malleable glass, which did not break on falling to the ground, and of this we believe some of the foreign glass now imported from the Continent is made. It was principally composed of the pulp of common paper, and was made transparent and waterproof. By the ordinary process and ingredients the material requires upwards of 50 hours melting at a very high temperature before it is fit for the workmen, but where there is a large percentage of slag the necessary time would be much less, so that there would be a considerable saving in fuel by the new system.

For several years past Mr. BASHLEY BRITTON, of Redhill, has been engaged in making experiments in the production of glass from furnace slag, and the result has been the formation of a company and the establishment of glass-works at Finedon, about two miles from Wellingborough, in Northamptonshire, where Messrs. CHECKLAND and FISHER have five blast-furnaces, and the results we are told have been most satisfactory, and sufficient to induce other persons to follow in the same line, for glass can be profitably made by the comparatively new process. What has been accomplished at Finedon, where something like a quarter of a million tons of slag are turned out annually, can be done at other places, and there is no reason whatever why there should not be a complete revolution in the production of ordinary glass, with a reduction in the price that would be of great public benefit, and this would lead to its being adopted for many purposes for which it is now unknown. As we have before stated the material for glass varies according to the quality desired. For crown glass the ingredients are—of sand five measures, ground chalk two, carbonate of soda one, and sulphate of soda one. However, from the experiments made by Mr. BRITTON we have the composition of an average description of slag and the ingredients of common bottle glass. They are as follows:—

	In slag—per cent.	Bottle glass—per cent.
Silica.....	40	45 to 60
Lime.....	35	18 to 28
Alumina.....	16	6 to 12
Magnesia.....	6	0 to 7
Alkali.....	1 to 2	2 to 7
Oxide of iron.....	1 to 2	2 to 6

It will be seen that the material of which bottle glass is made varies a good deal, so that there is no trouble as regards the composition; but the figures also show how easily the slag can be supplemented with the necessary percentage of ingredients to produce the required batch. With regard to other descriptions of glass it would appear that there would be no difficulty whatever in fixing upon the portions of stuff required for its production, and we believe that glass of a high quality will ultimately be made in which slag will play the most important part, and from its cheapness of production will meet with ready and profitable markets. As to the actual cost, Mr. BRITTON gives a few interesting details. In taking 175 tons of glass he says 160 tons of it would cost the ironmaster nothing, and instead of the usual labour required in mixing and carrying of the whole of the material, only about 75 tons would have to be lifted into the furnace. The material to be purchased would be 65 tons of common yellow or red sand, which could be obtained almost anywhere at a mere nominal price, with 10 tons of common sulphate of soda. The fuel required would be limited to what was needed beyond the surplus heat of the slag, *viz.* only three-sevenths of the glass to the required heat.

But it has been suggested that even the greater part of the latter might be saved by taking down some of the waste gases from the furnaces, and employing them with regenerators. This we certainly do not think would be a difficult matter, and would be of great importance, more especially in iron making districts such as those in Northamptonshire, where they are at a considerable distance from any coal field. Against these items there would be a set off for the cost of removing the 100 tons of slag, which would otherwise be thrown away, and a saving from the wear and tear of the glass furnace being lessened in consequence of the large quantity of material going into them already fused; consequently the cost of the glass in a melted state is comparatively trifling as compared with that by the usual method where no slag is used. The slag can be run directly into glass furnaces on the plan of Dr. SIEMENS for continuous founding and working. In working, the converting tanks are kept supplied with silica in excess, which can be in the usual form of sand, but flints or other siliceous stone are preferable, as they form a more permeable mass, and are readily dissolved when in contact with the basic slag.

Fresh supplies of silica are introduced when the slag is running, in order that it may become heated in the interval, to avoid chilling the slag when it is admitted, and as the slag is introduced it is fed by a hopper or other means with the alkali. No stirring or mechanical agitation is needed, the ingredients mixing of themselves, and as they combine and become glass, this being of a denser nature than crude materials, sinks below them, and forms a substratum of clear glass, and undissolved silica floating on the surface. The converting furnace is kept constantly at the necessary founding heat, and the glass is formed in it so rapidly that one furnace is sufficient to keep several of the working out tanks constantly supplied. The tanks are formed of the best glass-house fire-brick, and are so built that when worn they can be removed and new ones put in their place without disturbing the roof or side walls. There are air chambers below the tanks that serve to keep the bottom cool, and so check the penetration of the glass. At some places where glass has been principally produced from furnace slag it has been allowed to get quite cold, and then granulating or crushing it by means of water, then adding the other necessary ingredients, but Mr. BRITTON prefers taking the slag in a molten state with the other material required. The system being carried out in Northamptonshire shows that slag, with some additional material of not much cost, can be easily converted into glass, suitable for bottle-making and other purposes, and that at a price far below what similar glass can be made by the ordinary process without the furnace refuse. The cheapness of what we may term the slag glass must in time have the effect of greatly increasing its consumption, and adapting it for many purposes for which as yet it has scarcely been thought of. The works at Finedon, we believe, will be followed by others in different parts of the kingdom, and the quantity of glass produced be far in excess of what it is at the present time, more especially should it come into use in place of slates, and in some instances of bricks and tiles. The question of the absorption of our slag is a most interesting one, and commends itself to those seeking investments of a profitable nature, in what may be termed new and promising industries.

THE TRADES UNION CONGRESS.

The wide range of subjects, and the temperate manner in which they were discussed, during the sitting of the Trades Union Congress at Edinburgh shows a more healthy tone in the deliberations of the representatives of the working classes than we had anticipated. The individual delegates also displayed a feeling of thorough independence with respect to the questions that were brought forward, there having been nothing of the "follow-my-leader" policy which has too often prevailed at similar gatherings. This was more particularly observable with respect to the proposal of a National Federation of Trades Unions, which, after a long and well sustained argument against such a proposal, was only carried by a majority of two. Federations we consider to be most dangerous, and if carried out by one side would be followed by the other in self-defence. A federation of working men would almost of necessity lead to aggression—to an infringement on the rights of employers, from the very power it would give them were there no combination on the part of the masters. On the other hand, a federation of employers and capitalists could by concerted action, by depriving their employees of the sinews of war in the shape of wages, paralyse all the efforts to injure those they worked for. It would, therefore, be a very serious thing indeed were we to have a confederation on both sides, ultimately leading to a trial of strength, and so intensifying whatever antagonism there is left between capital and labour. There was considerable force in the argument used by Mr. GUILF, of London, that the workmen were not united in their local Unions, whilst a large number of working men in all parts of the kingdom did not belong to any Union whatever. Seeing, however, that the majority was so small we may come to the conclusion that federation will not be attempted under the circumstances. Mr. WRIGHT, barrister, read an interesting paper advocating a central board of appeal in the case of disputes between masters and men, composed of such independent persons as Lord DERBY, Mr. MUNDELLA, Mr. BRASSEY, Mr. RUPERT KETTLE, Mr. CROMPTON, and others. This certainly appears a more sensible way of preventing strikes than any other that has been brought forward.

Singularly enough Mr. MACDONALD's proposal for limiting production as the only means for advancing wages was not brought forward, so that we may take it that the member for Stafford has few sympathisers amongst the really intelligent representatives of the working classes in his wild scheme for improving the condition of the miners. Imprisonment for debt was another subject discussed, and there was a good deal of force in some of the arguments brought forward. There is no reason why honest poverty should be subjected to penalties that the wealthier classes were not. But where a man was able to pay and would not, then there appears no injustice to send him to prison for what could only be characterised as wilful fraud. That is the only plea that can be logically maintained for imprisonment for debt. Mr. MACDONALD, who appeared not as a delegate, but as a guest, addressed the Congress on the Employers Liability Bill that he had introduced into the House of Commons. We have so frequently shown that it was impossible in common fairness to pass such a one-sided measure that we need not go into the subject. However, Mr. MACDONALD stated that he would persevere with the Bill until it became law. If such are his intentions he proposes to live far beyond the age that has usually been allotted to man, for we have no fear of its passing this side of the twentieth century. The land-laws, although their connection with working men must be considered as remote, were discussed, and a reform of them ordered to be added to the parliamentary programme, the committee to use every legitimate effort to secure the earliest and best possible legislation on such an all-important subject. The codification of the criminal law, the draft of which was laid before Parliament, appears to have been considered satisfactory, and a resolution was agreed to urging upon Her Majesty's Government the necessity of passing the code next session. At previous gatherings the jury laws have been discussed, and there is no reason why they should not be so altered as to admit of working men being placed upon the list, as no qualification is required for a member of Parliament or for a School Board, and we certainly do not see why an exception should be made as to jurymen.

The resolution on the subject cannot be considered as otherwise than moderate. It was to the effect that it would be an instruction to the parliamentary committee to renew its exertions for the passing of the Jury Bill, prepared by Mr. HENRY CROMPTON, for lowering the qualification of jurymen, and providing reasonable payment for services so rendered. The latter part of the resolution is that which will strike most people as perhaps unnecessary, but then it may be said that working men are not in a position to give their time for nothing. The same may also be said with respect to a resolution passed in favour of the appointment of working men and working women as paid sub-inspectors under the Factory Act. This certainly appears from a certain stand-point as one-sided, and it is to be feared would lead to some unpleasant complications, for the workers would be placed in a position that might be made highly antagonistic to

employers. With regard to seamen it was resolved that the parliamentary committee should be instructed to use every means at its command to induce the Government in the next session to fulfil the pledge frequently given to afford to seamen the same protection in matters of contract as any other class of Her Majesty's subjects. We have thus briefly epitomised the business done by the Trades Congress at Edinburgh, and we have to congratulate the delegates on the moderation which characterised the proceedings, and the improved tone which marked the debates with respect to the employers of labour throughout the country.

ELECTRIC LIGHT FOR MINES.

Although the desirability of illuminating collieries in such a manner that the ignition of the fire-damp shall be rendered impossible caused attention to be directed many years since to the use of electric lamps for that purpose, the previous system of lighting with Davy lamps, Stephensons, and naked lights continues to be general; but the progress in electric illumination which has recently been made has led to the revival of the efforts, and Mr. G. G. André, of Charing-cross, has now constructed an improved lamp, which has been very highly spoken of by those who have seen it in operation. During last week, for example, there was a public exhibition of it at the offices of the British Electric Light Company, in Parliament-street, at which the Duke of Sutherland, Prof. Keates, the chemist to the Metropolitan Board of Works, Mr. Easton, C.E., and others were present. The lamp burned steadily and well during the whole time, and it was stated that it will burn 600 hours in a mine without requiring the slightest attention, owing to the peculiar arrangements for, and conditions of, burning, which will presently be explained. The Duke and the two professional gentlemen mentioned appeared much interested, and highly commended the general design of the lamp, the Duke expressing his satisfaction at the success attained, and remarking that he believed the lamp had a great future before it.

With regard to the lamp itself, in the details of which practical men will take far more interest than in the unsupported opinions of anyone, it will suffice to state that it consists of an air-tight glass cylinder about 15 in. high and 5 in. diameter, which contains the whole of the apparatus necessary for the regulation of the current so as to sustain the light. The lamp proper is a modification of the Regnier, Werdermann, and other contact lamps, the essential features of novelty being the substitution of a solid copper disc for the cylinder of carbon usually employed for the pencil to work upon, and the manner in which the pencil is kept in contact; and, lastly, the method of making the point of contact between the carbon pencil and copper disc self-cleansing. The negative poles consist of four copper discs about $\frac{1}{2}$ in. in diameter and $\frac{1}{4}$ in. thick, placed side by side, and about $\frac{1}{2}$ in. apart. These discs are pivoted at point near the periphery, so that by the action of an electro-magnet they are given a small amount of play. Four Carré carbon pencils of about $\frac{1}{4}$ in. diameter rest upon their respective discs, the current being admitted near the point of contact by the use of a small weighted lever. To ensure the proper descent of the pencils each is enclosed in a vertical tube of suitable size, and weighted just sufficiently to keep the pencil to its work without breaking the point. In the event of any deposit upon the copper disc interfering with the continuity of the light the electro-magnet already mentioned moves the disc and instantaneously re-establishes proper contact. There is a shunt for bringing the four pencils into use in succession, as each is consumed, and as the total length of the carbons is 1 metre, or 40 in., there need be no fear of their failure during the longest period of work for which the lamp would be required.

Great importance is attached to the circumstance that the atmosphere is excluded from the carbons, and it is explained that as the lamp is air-tight there is only an infinitesimal consumption of the carbons after the first short interval necessary for the decomposition of the enclosed atmosphere, and that afterwards the incandescent carbons are surrounded by an admixture of nitrogen and carbonic acid only. The total length of time during which the lamp will burn is put down, as already mentioned, at 500 or 600 hours, and it is believed that the cost of carbon consumed during that time will not exceed sixpence. The current itself is supplied from a Gramme machine (size A), and the cost of generating the electricity would, of course, depend upon many circumstances which need not here be discussed; the price of the lamp itself would be about 5*l.*, one lamp sufficing by the use of reflectors, &c., for several working places. As the computator which switches the current is automatic, and comes into action whenever there is a break of circuit from any cause, the continuity of the light can be fully relied on. When the lamp has been submitted to a thorough practical test in a mine it will be more fully referred to.

AN AUSTRIAN VIEW OF BRITISH METALLURGY.

It is sometimes well to see ourselves as others see us, and the opinions of an intelligent foreigner are occasionally well worth having. Now-a-days foreigners, too, are more intelligent than they formerly were. They obtain a more thorough mastery of our language, and they do not make quite so many ludicrous blunders when they attempt to deal with British topics. Herr HUPFELD, an Austrian metallurgist, has just been treating with painstaking care the interesting topic of the future of the manufacture of Bessemer steel in Great Britain and Europe. Herr HUPFELD starts from the assumption that the possibility of making a good product from any raw material is now established, and that in the future pig-iron will only to a certain limited extent be graded into high-class and low-class metal. He expects that in England the Cleveland group will take the same position in regard to the production of large quantities of steel which it has formerly held in regard to iron, and that it will possibly be a gainer by the losses sustained by the Yorkshire, Shropshire, Staffordshire, Lancashire and Cumberland districts. In the latter, according to Herr HUPFELD, hematite pig of lower grade cannot be made for less than 42*s.* to 45*s.* per ton, while better pig would cost to produce 46*s.* to 50*s.* per ton. On the other hand, Cleveland pig can be made for 36*s.* to 38*s.* per ton—a difference of almost 25 per cent. Herr HUPFELD thinks that as the cost of converting is, taking the most unfavourable estimate, equal in both cases, while loading and shipping are cheaper in Cleveland, the production of that district will be lower in price by 10*s.* to 12*s.* per ton than in the hematite districts on the western side of Northern England. Herr HUPFELD comes to the conclusion that rails will be made in Cleveland as low as 75*s.* to 80*s.* per ton; and as the district is easily capable of turning out 2,000,000 tons of pig-iron per annum, and formerly rolled from 300,000 to 400,000 tons of iron rails annually, there is every prospect of its being able to put 1,000,000 tons or more of Bessemer steel rails upon the market every year. If this is a correct view of the matter, Herr HUPFELD concludes that the works on the western side of England will be obliged to devote attention to other classes of manufacture but he thinks that in any case they will not escape a considerable contraction of their output. Nor can Scotland, where grey pig cannot be made for less than 40*s.* per ton, think of competing with Cleveland in the judgment of Herr HUPFELD, because the cost of converting Scotch pig into steel will be greater, owing to less favourable conditions, and because the freights to tidewater are considerably higher.

Herr HUPFELD proceeds to remark that Messrs. BOLCKOW, VAUGHAN, and Co. (Limited) have succeeded by working at Eston with a modern plant capable of effecting an enormous production in taking a commanding position in the international steel rail trade. Their chief Continental competitors are Seraing (JOHN COCKERILL Company) and a number of Rhenish and Westphalian works, notably KRUPP (of Essen), Bochum, Hoerde, and Osnabrück—Austrian and French firms being virtually, in the opinion of Herr HUPFELD, out of the race. Herr HUPFELD believes that owing to advantages which the new process will give the English, Continental makers will no longer be able to compete with them. It is true, he says, that there is one district on the Continent which can compare in size and cheap production with Cleveland. This is the well known district containing enormous deposits of the ore known as "minette," which is found in the French department of the Moselle, and extends, through Lorraine and the Luxembourg, to the Belgian frontier. There is no reason to suppose that minette will not dephosphorise as well in Bessemer as in the English process.

semer converters as Cleveland pig, but the distance for which coal for rolling must be carried is much greater than that between Durham and Middlesbrough.

GOLD IN INDIA.

It is some months since it was announced that gold fields had been discovered in Southern India, extending over a considerable area of the Malabar district and Neilgherry Hills, and it will be exceedingly interesting to the public to learn that Mr. Brough Smyth, the eminent mining engineer from Australia, and now in India, has sent in a most encouraging and valuable report on the claims of the first company (Alpha) which was started some three or four years ago, and coming from so high and cautious an authority, and through the Government of India, we do not hesitate to bring it prominently before the commercial and mining public, sincerely hoping that in the present embarrassed state of India's finances it will not be long before we see active and successful efforts made to develop the enormous mineral wealth which lies dormant in the Wynnaad.

Mr. Brough Smyth's report contains the results of experiments made on quartz taken from different parts of the Alpha workings, which are startling, and would have occasioned excitement amongst persons not acquainted with quartz mining. At all events it has been thoroughly ascertained that the Alpha reef is in some parts highly auriferous, and the future success of the company, if carefully managed, may be considered as fully assured. One of the assays by Mr. Brough Smyth gave no less than 204 ozs. of gold to the ton of quartz.

The mining concessions acquired by Messrs. W. Nicol and Co., of Bombay, and now taken up by Scotch company, were secured at the strong recommendation of Mr. Oliver Peglar, Associate of the Royal School of Mines, who visited the Wynnaad previously to Mr. Brough Smyth, and who brought with him to this country samples of the auriferous quartz valued at several hundred pounds. We believe we are correct in stating that Mr. Peglar found the Alpha reef to be exceedingly rich at one point of the reef, called Wright's Level, where the quartz gave from 20 to 30 ozs. of gold to the ton. The opinions of these two mining engineers agree that the alluvial and surface gold has been removed to a considerable extent by ancient mining operations, leaving the rich and more profound reefs practically untouched, and available for future enterprise and development. As a result of the above opinions the Alpha Company has been restarted with further capital. In addition to this, and the Indian Gold Mines Company, other companies are now forming, so it is expected that before long results may be such as to place beyond doubt that India will rank as one of the richest gold producing countries in the world.

MINERALS PRODUCED IN AUSTRIA IN THE YEAR 1877, EXCLUDING HUNGARY.

	Quantity.	Value.
Gold ore	105.2	£ 1,278
Silver ore	9,561.5	310,725
Mercury ore	32,112	77,396
Copper ore	4,845.5	26,358
Iron ore	538,701	186,458
Lead ore	9,400	138,568
Nickel and Cobalt ores	105.3	1,198
Zinc ore	24,002	34,245
Tin ore	786	not valued
Bismuth ore	0.12	46
Antimony ore	173.4	2,904
Arsenic ore	135.3	133
Uranium ore	7	4,989
Wolfram ore	39.5	335
Chrome ore	95	589
Sulphur ore	6,365	7,608
Alum and Vitriol schist	147,661	9,195
Manganese ore	7,900	6,985
Petroleum	608	6,012
Graphite	11,838	53,338
Asphalte	79	95
Coal	4,885,863	1,753,027
Lignite	7,126,019	1,450,090

The total value of minerals produced in 1877 was £4,971,574, being 188 per cent. below that of 1876. The average prices of coal and lignite were lower in 1877 than in the preceding year. Coal was 376 per cent. and lignite 437 per cent. lower.

The production of salt was—Rock, 54,098 tons; brine, 149,111 tons; bay, 33,928 tons; manufacturing, 13,921 tons.

IRON, LOCOMOTIVES, AND LEAD, IN AMERICA.

FROM A ST. LOUIS CORRESPONDENT.

Iron has advanced about 20 per cent. within the last sixty days, and is still advancing. Steel has also advanced in the same proportion. Makers are now complete masters of the situation, and are dictating their own terms. In fact, the mills throughout the country do not appear able to meet the demand. Many of them are booked ahead with orders for nearly a year. The Erie Company have ordered 30 new engines, and the Elevated Railroad of New York as many more. The Rogers Works have more orders than they can fill, and the Danforth Works are likewise driven day and night to their utmost capacity. The Baldwin Works of Philadelphia have had more orders pouring in upon them for the past nine months than they could fill with the largest force the company has ever employed. The Rhode Island Locomotive Works are full, including large orders mainly from the north-west. The Taunton (Mass.) Locomotive Works are building 10 engines for the Union Pacific. A large manufacturer reports that he had proposals for no less than 100 locomotives, and that never before was this company so full of orders of this character as at the present time. This year witnesses the beginning of more railway enterprises than have been known for the past eight or nine years. Kansas alone has under contract 665 miles. The Northern Pacific Railway has suddenly taken on new life, and in June last the stockholders subscribed \$2,000,000, to be applied for the extension of the line from Bismarck to the Yellow Stone—200 miles. No less than 15,000 miles of railroads are in process of construction throughout the United States and territories; while many of the older lines are renewing their rails, improving their road-beds, buying new locomotives, and making active preparations for the greatly increased volume of business in consequence of our abundant and magnificent crop, and the general revival of business throughout the United States.

Lead—one of the most important interests in Missouri—is showing in the advance in price with other metals. For years soft Missouri ranged from 6 c. to 7 c. per lb., and the price declined more upon the fears of large supplies from the argenteriferous States than upon any actual amounts that ever reached St. Louis from that section of country. But it is now very evident that the supply of lead is rather below than above the consumption. There is a falling off in the output of Nevada and Utah of 17,000 tons, and our own production this year in the Missouri basin will be from 5000 to 7000 tons below our best years. For sixteen years Missouri showed an average increase in her output of lead of 19 per cent., but in 1878 we began to decline instead of increasing. Just at business began to improve our supply fell off 12 per cent., or 35,671 pigs. This year at present rate of production it will be about 12 per cent. This decrease, added to the average increase for sixteen years of 19 per cent., shows an actual falling off of 31 per cent. Low prices and other causes have discouraged production, while our gold and silver mines have been more attractive, and drawn off attention from lead mining. The diminished supply will probably put pig-lead back to its former price of 5 c. or 6 c. per lb. In 1878 we consumed about 73,000 tons. It is estimated it will require about 100,000 tons to meet this year's demand. Pig-lead is advancing in England. Russia has come into the London market for 20,000 tons within the past three months. Russia buys of England on the average \$1,000,000 of pig-lead per annum. England is a heavy exporter of lead to China, Japan, the Oriental, and South American markets. Her exports of lead in her

best years of trade have run up from \$5,000,000 to \$7,000,000. The United States ceased importing in 1876, and we have also become exporters; but our demand now requires our entire output. We have very rich mines in Missouri, and this important interest will undoubtedly attract more attention in the future, as our supply is now below our wants.

THE DARLINGTON ROCK-BOILING MACHINERY.—Extracted from a report addressed by Mr. H. R. Hancock, manager of the Moonta Mines, South Australia, to the board of directors at Adelaide, Aug. 9:

I have much pleasure in reporting that the Darlington rock-boiling machinery employed in sinking Taylor's shaft is a great success, the shaft being of large dimensions—14 ft. by 6 ft.—and the rock extremely hard. The cost of sinking the shaft by hand labour for 28 fms. previous to the introduction of the boring machines, omitting extra work, such as plats, &c., was \$47. per lineal fathom. The last 10 fms. 5 ft. have been sunk by the boring machinery, the contract price of the miners for labour only being 37.10s. per fathom. The total cost per lineal fathom, including wear and tear of boring machinery, engine charge, and mechanical work in connection with air compressors, interest of plant, and all et cetera is \$82. 10s. per fathom. By comparing the boring machinery with the results of the previous 28 fms. sunk by hand labour, the depth sunk has been double and the cost per fathom has been less, and I see no prospect of a diminution of the effectiveness and economy of the machinery; on the contrary, the cost in connection with its working is being reduced as more experience is gained. The present depth of the shaft is 182 fathoms.

TIN MINING IN BOHEMIA.—The celebrated Schlaggenwald-Schonfeld Tin Mine, known formerly as the Imperial Mine, 1 mile distant from Carlsbad, on the Bohemian North-Western Railway, containing 30 mine fields, measuring 12,544 square klapfer (or fathoms) each, with shed, horse-whim, two bubbles with water-engine, wash-house, and foundry is, on account of the owner's death, to be sold under very favourable conditions by Mr. Joseph Buss, of Schonfeld. The tin mine is divided into two parts, and consists of the rich mine floor with two main gangs (champion veins) and several smaller gangs (veins), and the floor quarters (large ore chambers), where the large Huberfloor (Huber ore chamber), besides some smaller floors ready for draining. The powerfulness (width) of each gang (vein) is 90 centim. (about 1 ft.) and over, and consists of quartz, felspar, finstone, wolfram, iron-pyrites, tin-glass, fluor, topaz. Each klapfer gives about 6000 to 8000 lbs. ore, from 1 to 1½ per cent. tin. The Huberfloor (Huber ore chamber) extends over 300 klapfer, dug to a depth of 60 klapfer only (of which only 60 fms. have been wrought), and has a numberless quantity of fine gangs (veins) and clefts (fissures). Draining is very cheap and satisfactory, and the labourers—versatile and industrious—content themselves with 70 to 80 kreuzer (1s. 4d. to 1s. 6d.) wages daily. Large quantities of tin, which is of very superior quality, have been heretofore purchased by the Imperial Military and Naval Administration at Trieste. Fuel and timber can be obtained at very moderate prices, the mine being situated in the vicinity of vast woods.

IRON IN AMERICA.—Between the years 1872 and 1876 upwards of 100 blast furnaces, equal to an increased production of 1,000,000 tons of pig-iron per annum, were erected in the United States. As recently as 1866 no Bessemer steel was produced there. In 1878, 713,000 tons of Bessemer steel ingots, and 650,000 tons of rails, were produced.

COLORADO SILVER MINES.—Colorado is rapidly coming to the front rank as a producer of silver, the yield of the State being estimated at about \$24,000,000, of which over two-thirds are produced from the mines of Leadville. The Denver Times considers this estimate to be under the mark, and that the annual yield will not be less than \$30,000,000 in value. The history of Leadville is a curious illustration of the mushroom rapidity with which a Western "city" takes its rise. It is situated in Lake County, Colorado, at an altitude of 10,300 ft. above the sea among the mountains which give rise to the headwaters of the Platte and Arkansas rivers. Three or four years ago Leadville was unthought of and unnamed, and now it is a city with stores and offices, daily newspaper, police-station, public school, churches, and no less than 300 saloons. With the exception of the mines of Cerro de Pasco, near Lima, Leadville is probably the most lofty populated district in the world. Notwithstanding the number of drinking saloons, it is remarkable that intoxication is not so frequent at Leadville as at other similar places, especially when it is considered that at such an altitude fermented liquors intoxicate more quickly than at lower elevations. The evenings and nights are very cold, but the air having so little density, a few pine chips will light up and warm a room almost immediately. The ore which is taken to works at Omaha and St. Louis for smelting, has an average value of \$75 to \$100 per ton. The scenery on the Platte and Arkansas canons is magnificent, and there is no doubt that Leadville will before long be a constant resort of tourists, who will find the long journey thither amply repaid by the grandeur of the country.

COLORADO UNITED.—In the rearrangement of the Share List on the last page of the Journal the indication that this mine "has paid dividends" was accidentally omitted. The last dividend paid was 4s. per share in February, 1875, and although a period of depression has been passed through full confidence is felt in the future of the undertaking. The executive hope, and those who know the property well believe, that they will next spring resume and maintain their position as a dividend paying company. The exertions of the present manager are directed to a proper development of the Terrible Mine, where for months past they have been sinking and driving in good paying ore, but stopping very little.

REPORT FROM CORNWALL.

Sept. 25.—Chary as experience has taught us to be of anything in the shape of direct prophecy, we are yet inclined to venture on the opinion that another rise in the price of standards is very close at hand. There are certainly not wanting those who not only to all appearance look for little more, but still believe in retrogression, and who hailed with a kind of gloomy satisfaction the natural reaction to which we referred last week—natural because all experience tells us that even the most steady progress has its periods of rest, and at times of absolute ebb. It did not take very long to get rid of the slight shakiness which the market manifested after its splendid spurt, and again we have had a period of activity in the share market.

If Capt. Southey can make all of jiggling that he believes he can (and be it borne in mind that he does not speak without results to back him) here is another element of profit for our tin mining. Anything that reduces the cost of production is quite as good as a rise in the standards, and it may be even better, because a rise in the standards operates all round, and benefits our competitors as well as ourselves, and a reduction in outlay on production is the individual gain only of those who experience it. And if Capt. Southey does not absolutely return the tin cheaper in one sense, still if he can return more for the same money by preventing much of the enormous waste that now takes place it comes precisely to the same thing. Say the dressing expenses remain in gross just what they were, every additional ton of black tin returned for the same money lessens the cost of every additional ton in detail. We are not without grounds for believing that both tin and copper dressing may yet be absolutely revolutionised. Wet treatment has never had its fair chance with copper ore yet; and air separation may yet be found workable for tin. Meantime, however, it is clearly the wisest course to make the best of the methods we have, and Capt. Southey's action must result in good. We regard the matter, however, as having now got far beyond the domains of newspaper correspondence. It should be taken up in a more practical and technical way, and the very best thing that can be done for it is to be brought up at a meeting of the Mining Institute.

The South Crofty account was very satisfactory in some ways, and not at all so in others. It is very satisfactory to find that this good old mine has another chance of life, and it is equally so as a remarkable testimony to the real progress that has been made of late years in the conduct of mining operations, to find that this is due to the boring-machine. As Mr. Edward Hearle Rodd pointed out, but for the boring-machine, and the progress which it enabled the mine to make, the patience of the shareholders would have been quite exhausted, and the new lode would have remained undiscovered.

It is not satisfactory to see so much shuffling in regard to share liabilities, the style in which "dead men" have come to life since the news of the discovery, and the wonderful way in which the calls have been paid up. However, human nature is pretty much the same in mining as in other matters. South Crofty appears to be "out of the wood," and everybody will rejoice at it. The East Pool adventurers seem to have begun their rejoicing very early (and this is another of the unsatisfactory points to which we have alluded). It surely was not worth while to save 15s. a month to be so very sharp in cutting off the contribution towards the pumping charges. Besides we are very much inclined to think that in this matter East Pool has had and has its money's worth. There is probably no chance of obtaining a reversal of the decision, but it is certainly a shabby one. East Pool could have done no other if it had been struggling for existence. By all appearances, and with the North Crofty added, South Crofty is again destined to take a leading place, however, and after all it can afford to do without the aid of East Pool, just as the claim for that assistance still continues to be. We repeat that this result is entirely due to the boring machine.

What will Dolcoath come to? The lode in the bottom level east is stated to be 40 ft. wide, and worth for 36 ft. 1 cwt. of tin to the foot, equal to 6 tons per fathom. A good deal more like a "mountain of tin" (underground of course); this shows the much vaunted Mount Bischoff.

It is not often the ladies descend mines, but when they do they are sure to be plucky. Pluckiest of the plucky, however, one seems to have been who went underground at Wheal Peevor the other day under the conduct of Capt. White. She was one of an influential London party, and, according to the Cornish Telegraph, "put the whole of her companions to the blush." She was, in fact, the chaperone of the party, and Capt. White had to lower his colours to the fair young athlete, who climed here, there, and everywhere, with all the vigour of an experienced miner, and drove the perspiration from him in a way that was a caution. She was as often ahead as behind him, and would now and then grumble a bit that the energetic captain, who was really doing his best, was not more expeditious in his movements." "There's a rise in the back of the 36 fm. level, which is up about 5 fms., and we have a wonderfully productive lode there," said the captain to the lady; "would you like to break a stone yourself?" No sooner said than done; and the young lady fairly took the "rise" out of the captain by the agility with which she ascended, broke the stone, and appropriated it to her own use, as a memento of the occasion. Capt. White was fairly "put through."

TRADE OF THE TYNE AND WEAR.

Sept. 24.—The Coal Trade in Northumberland continues very steady, and it is expected that it will be well sustained through the ensuing winter. During the past week most of the pits have been in full swing, and the coal in this county still keeps its high position in the market, notwithstanding that the Scotch and Welsh coals are somewhat lower in price. It is expected that the Barrington Colliery, near Bedlington, will be re-started shortly, and the recovery of this important branch of the coal trade, after such a long and serious depression, is one of the most hopeful signs we have in this district of improved trade. The shipments of coal in Tyne Dock have not been quite so good in the past week, but most of the works are still fairly employed, the best gas coal works are at the present time fully employed, and also the best coking coal works, and the demand for house coal has improved somewhat, but there is still room for increase in the demand for second-class coal, and for coal for manufacturing purposes. The exports of fire-clay products and other fire-clay products continue fair, and several cargoes of lead, iron, &c., have been loaded for Cronstadt and other foreign ports. The imports of timber, grain, &c., at Tyne Dock and other points also continue good.

Although the past few years have been extremely unfavourable for colliery and all other mining enterprise in this district, some new mines have been gradually developing, and, if not making much profit, they will some of them be certainly in a position to earn large profits when brisk trade does again arrive. The new winning at Whitburn continues to advance, and rapid progress is now being made with the first shaft, which was put through the water-bearing strata by the Chaudron system. Amongst the new coal works the Kimblesworth Colliery, near Durham, is worthy of notice. The seam here lies not far from the surface, and 1200 tons of coal are drawn per day by one winding-engine. There is a good sale for the coal, and the works are kept going pretty regularly. The output of such a quantity, with a comparatively small plant, is of course very favourable for the working of the coal at a small cost.

The pig-iron trade continues firm, with still an improved feeling, and purchases are made for next year at increased rates. The manufactured trade does not alter much. There has been some orders of late for Wood's patent iron sleepers, both for home and foreign account. Iron shipbuilding continues very slack, and the engine and boiler trades are extremely dull, so that the prospect for artizans for the winter generally is very dull. Iron founders and pipe makers are fairly employed. The shipments of pig-iron have been large from the Tees and the Hartlepools, the total having been 24,000 tons. The Scotch shipments were 7000 tons, and the exports to France, &c., were good. To the United States 1500 tons were sent as the commencement of large contracts. The award of Mr. Dale in the ironworkers' case has been given, and he awards that a reduction of 12½ per cent. be made in the wages of rollers, heaters, shinglers, and others. The employers also claimed a reduction of 5 per cent. in puddling and other forge and mill wages, but in those classes of labour Mr. Dale makes no alteration in rates. The iron workers generally have not accepted the award of Mr. Dale, a considerable number of them have indeed come out on strike. They have refused to work at Stockton, Jarrow, East Hartlepool, &c. Through the failure and stoppage of plate mills there are now only six in operation in the North of England connected with the board of arbitration. The chief of those is Consett, at which work is continued; all the other plate-mills are stopped by the turn-out. The case is a complicated one, as the men do not appear to understand the exact meaning of the award. It is customary for the men to receive a tonnage standard rate of wages, the actual earnings now being 25 per cent. below the standard through the various reduction which have taken place. It would appear that Mr. Dale intends the award only to apply to the actual earnings of the men after the 25 per cent. has been deducted, which would make only a fraction over 9 per cent. on the net wages of the workmen. Under these circumstances the men are anxious for further information on those points.

At Middlesbrough, on Tuesday, the market opened strong, showing an advance of 1s. per ton on last week's rates. As the market proceeded and news from Glasgow arrived makers put up their prices 1s. to 2s. per ton. The market was much excited, and reliable quotations were difficult to obtain. Various quotations are given, but practically little business was done. No. 3, 3s. 6d., and for next year 40s. to 42s. Shipments on a large scale are proceeding, and some deliveries are being made for America. Last week there was the largest delivery of iron which has been made for a long time, the shipments being between 24,000 and 25,000 tons. Scotland alone took nearly 9000 tons of Cleveland iron. The finished iron trade has been quiet. Prices have been rather high on account of the rise of pig-iron. The turn out of millmen is a cause of anxiety, and the stoppage of those works greatly disturbs trade. It is expected that they will soon resume work. Manufactured iron improves slowly. Prices are not much altered. Ship-plates, 5s. 2s. to 5s. 5s. The founders of the district are fairly employed, as are also the steel-works.

continues to develop more workings, and by the employment of more men the dressings are now fully kept going. There are a few coal and other mines in this district, and also in Cumberland, at present offered for sale, but as mines are in bad odour, and those mines could be had cheap, buyers as a rule will not look at them, but will delay buying until they see that there is competition for them, and the price of course is greatly enhanced.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

Sept. 25.—The proprietors of blast-furnaces in South Staffordshire continue to receive plenty of enquiries, and more frequently than before these enquiries result in orders. Some leading masters have booked forward to an extent which makes them indifferent about securing more contracts at present, and they quote prices which result in the withholding of orders. A 10s. rise is this week being asked by a few pig firms, and they refuse to take less. Best Staffordshire and Shropshire houses are very firm at 37s. 6d. per ton for hot-blast sorts, and 47s. 5d. for cold-blast. Cinder pigs are about 27s. 6d. per ton. Finished iron is not in large sale outside the sheet branch, and in this department, too, business is hardly so brisk as it was. This week's Australian mail has not brought galvanisers many fresh orders. Prices of sheets are up 2s. 6d. and 5s. a ton, but best bars and plates are not changed: 7s. 10s. keeps the crucial price for marked bars, with 8s. 2s. 6d. as Earl Dudley's quotation. Common bars maintain the full advance of 5s. demanded a fortnight ago. Coal is unaltered.

The arbitrators under the Mines Drainage Acts have just given notice of their intention to make a draft Mines Drainage Award for the Old Hill district. They estimate that a rate will be required of 3d. per ton on fire-clay and limestone, and 6d. per ton on ironstone, coal, slack, or other unmentioned minerals, to be payable in respect of all mines worked within the district, except that portion which consists of the mines on the south side of the River Stour, which are pits in the southern sub-district of the Old Hill district. Owners or occupiers of collieries interested may give evidence upon the proposal at a public meeting in Wolverhampton on the 11th prox.

Mr. James Capper, the operative secretary of the Iron Trade Arbitration Board in this district, has just made a written communication to the ironworkers in this and other districts upon the award in the Middlesborough district touching middlemen's wages. Mr. Capper condemns the decision of Mr. Dale, and expresses the hope that if any attempt should be made to put the middlemen of South Staffordshire upon a similar level with those in the North of England all practicable resistance will be offered.

The Chairman of the Coalmasters' Association (Mr. E. Fisher Smith) has this week been waited upon by a deputation of colliers' agents and delegates, conveying a formal request that he would declare an advance in the price of coal, so that the colliers might have increased remuneration. The deputation was courteously received, and it was explained to them that Mr. Smith had no power of himself to take the course which they wished, but that their request should be laid before the Coalmasters' Association at an early date.

The North Staffordshire coal and iron trades display no new feature calling for notice this week. Many of the men at Silverdale and Apedale have commenced work pretty much at the old rate of pay. The strike has lasted two months.

REPORT FROM DERBYSHIRE AND YORKSHIRE.

Sept. 25.—There has been no change to record with respect to affairs in the lead mining districts of Derbyshire, there being still a moderate production of ore. But it is only in a few instances that the mines can be said to be realising a profit at the present price at which lead sells. Poor men, however, who have taken places on their own account struggle on gamely enough, and are evidently contented with very small mercies in the shape of realised profit for hard work. There does not appear to be any new ventures, and some of the companies are evidently quiet, and one scarcely ever hears of any of them paying a dividend, anything in that shape being left to the dusky future, and shareholders have evidently been so long without receiving anything but reports that the probability is the last thing they think of is a dividend. Ironstone mining in the county is now carried on to a comparatively limited extent to what it was formerly, dependence being now placed in particular on Northamptonshire, where the resources are almost inexhaustible and the price moderate. Some of the stone there is far more valuable than any that can be raised in Derbyshire, being highly siliceous, and giving from 35 to 40 per cent. of metallic iron. Pig-iron of late has been in better request, and prices appear to be on the rise, so that if this state of things should go on it is not improbable but some more furnaces will be put in blast, for stocks have gone down. In manufactured iron there has as yet been no material change either as regards mill or foundry material, but there is no doubt but Derbyshire will share in the revival of trade when it is really felt. The demand for house coal has kept up fairly for the time of year, and an average tonnage has been sent to London during the last few days. Still prices do not improve, so that colliery owners have as much as they can do to carry on without loss, and there is every reason to believe that some of them have been considerable losers during the greater part of the year so far as it has gone. There has been a dispute at the Kilburn Colliery with respect to some new bye-laws that were introduced causing the men to strike. The bye-laws, however, were withdrawn, but many of the men declined to resume work, as they say that the wages are to little to live upon; but as their places are in several instances been filled up, they are likely to be out altogether, and without any other alternative. The activity in some of the Sheffield trades has led to an increased business being done in coke for smelting and other purposes, and a large tonnage is being sent away from several establishments.

The improvement in the Sheffield trades continues, and some good orders are being received by most of the leading manufacturers, so that there is every probability of business being tolerably good up to the end of the year, and of extending to branches that are now rather quiet. There has been more activity with respect to armour-plates for our own Government, and some are being rolled for the Agamemnon 30 tons in weight. Steel guns and gun blocks are also being made by one well known firm, whilst there is more doing in plates for ships and boilers. Makers of best cutlery have received some good orders of late, whilst there has been an improved demand for goods of a varied character for Australia. America, too, strange to say, despite her tariff, continues to be a good customer for ordinary and manufactured steel material. The increase in the production of Bessemer rails has led to a large demand for hematite pig, and this has been followed by a considerable advance in the price, which will rather seriously affect some of the rollers. Ordinary pig has also gone off better, and, as a matter of course, a higher figure is obtained. Stocks, it may be said, have been considerably reduced, and if things go on as they are more furnaces will shortly be put in blast.

In South Yorkshire the Coal Trade has been fairly maintained, but owners say that they are unable to clear themselves, let alone make profits. The result is that at several places the men have received notices to leave, which means a reduction of wages. At Wells, Birch, Ryde, and Co.'s, where between 400 and 500 men are employed, and where two, if not three, seams of coal are being worked, the men are under notice. At Monk Bretton Colliery the notices expire on Thursday, and the men have not stated what they purpose doing. At Rockley, in the same district, the men are still out. In fact, the trade is in a very unsettled state, without much prospect of its changing for the better. The men, however, have thrown overboard Mr. Macdonald's panacea for raising wages—limitation of production—which he urged upon them whilst down here a few weeks ago.

A drawer in the Sovereign Pit of the Wigan Coal and Iron Company has been fined 40s. and costs by the Leigh magistrates for having taken a tobacco pipe into a mine which was said to be very fiery—a continuation, in fact, of the fatal Wigan 9-ft. seam. There were 70 men at work in the pit at the time. Reckless colliers fare worse in the neighbouring jurisdiction, the county magistrates at Bolton generally punishing such offences with imprisonment.

At the Staveley Coal and Iron Company (Limited) annual meeting, held at the works, Staveley, on Monday (Mr. C. Markham presiding),

the report showed that the net profit from the various businesses of the company for the year ending June 30 was 29,291*l.*, which, added to the balance brought forward from last year, made a total of 60,779*l.*, out of which an interim dividend was paid to the shareholders in February last of 13,033*l.* The directors now recommended a further dividend of 1*l.* 10*s.* per share on the A and C shares, and 5*s.* per share on the B and D shares, and to carry forward a balance of 28,196*l.*

THORP'S COLLIERY COMPANY.—At the meeting of Thorp's Gawber Hall Colliery Company, held on Friday, no dividend was declared. The propriety of reducing the capital of the company under the Act of 1877, by application to the Court, was discussed at considerable length. Some of the shareholders thought it would place the company on a more satisfactory basis to reduce the capital in the balance-sheet to a sum representing the actual value at the present time, whilst others thought that no practical advantage would be obtained by so doing. Ultimately the further consideration of the subject was left over to the next half-yearly meeting.

REPORT FROM NORTH WALES, SALOP, AND CARDIGAN.

Sept. 25.—"Enquirer's" historical sketch of the bright side of mining in the Llanarmon district is interesting, and with Capt. Ede's letter on the stratigraphical structure of the district is a contribution to the mining features of the borders of Denbigh and Flint. I daresay a reverse side of the picture could be shown, but I have no wish to damp the ardour of those who are carrying on active explorations in what ought to prove a good mining district. With regard to the desire of my friendly critic that I should elaborate a plan for the holding of outdoor lectures on mining I will ask him to wait a few weeks, when I hope to be permitted to record the inauguration of a scheme which will include these field lectures within its plan of operation, and which it is hoped will mark an era in the history of mining in the Principality. I regret with "Enquirer" the omission of the local statistics referred to, but we must submit to Editorial necessity.

As a whole, lead mines are doing better within my district. A few more have mounted to the Dividend List, others are opening out promisingly, and with others more attention is being paid to the blende ores they contain. If a reduction in the cost of lead mining can be effected in Wales similar to that which has been made in tin mining in Cornwall during the recent depression more lead mines in this district will be worked successfully. I do not object to a poetical outburst like that we recently had in the Journal, but mining success can only come from intelligent, cool, and persistent work, with a very close and prosaic attention to details.

I have often thought it would be a good thing if some mining Martin Tupper would contribute to these pages—with the permission of the Editor—a collection of Mining Proverbial Philosophy. Failing such a man, I would suggest that from among the numerous readers and correspondents such a collection of Mining Aphorisms, brief and pithy, could be made.

Two more collieries are to be broken up and sold—the Plasuchsa Colliery and Brickworks—on Oct. 2, by order of the Sheriff of Denbighshire. It is difficult to understand how this little work, chiefly a brickworks, has come to this. It has good material, which can be as cheaply worked as at most other brickworks, and it has railway communication. At one time it was doing a good trade, but it has been idle for some time past. The other is the Brynkinalt Colliery, the plant of which is to be sold on Oct. 3, by order of the liquidator. This colliery was started originally by Mr. Walter Eddy and the late Mr. Edward Morris, the latter one of the first owners of the Van Mines. Latterly it has had two new shafts put down with new plant, a slice of the late Ifton Rhys royalty added to it, and a communication made after great difficulty with the Great Western Railway. But it has had, nevertheless, to succumb before the unremunerative prices that have prevailed for some time past. If this and other collieries of the district are ever to be worked again it will have to be under more liberal arrangements with the royalty owners. The Patent Gunpowder Company—if that is its present name—whose works are admirably situated up the valley of the Ceriog, is being wound-up, and thus one by one the works that were started in the good year of 1873 are passing away. I fear another generation will pass away before they will be restarted. The slate quarries of the Llangollen and Corwen district are still working very quietly.

The adventurers in mines in the Mold district will be glad to learn that the Mold Foundry has been purchased from the limited company which formerly owned it by Messrs. Bicknell and Taylor, the proprietors of the Sandycroft Foundry near Chester, who will commence business there on October 6. The loss sustained by several of the works in the district through the closing of the Mold Foundry having prevented them getting their repairs executed on the spot has been considerable, but this will now be fully compensated by having a branch of the Sandycroft Foundry in their midst.

REPORT FROM MONMOUTHSHIRE AND SOUTH WALES.

Sept. 25.—This afternoon, at the Albert Hall, Newport, honour was rendered to whom it was due. We have already referred to the several men who acted in the true spirit of heroism at the time of the Abercarn explosion. The Mayor of Newport (Mr. G. Gibbs) presented two Albert Medals of the first class to those whose names form the first two on the list given below, and six of the second class to those following. There was a large attendance, and as the recipients came on the platform Mr. E. J. Ewins played on the grand organ of the hall "See, the conquering hero comes." Among the speakers was Mr. Cordes, M.P. for the Monmouth Boroughs. The following are the names of the men:—Henry Davies, collier; John Harris, mason; William Simons, pumpman; Thomas Herbert pumpman; Miles Moseley, overman; Charles Green, collier; William Waters, collier; Lewis Harris, overman—all of Abercarn.

At the Wann Llywd Colliery, Victoria, the property of the Ebbw Vale Company, an explosion has occurred. Three men were killed, as well as sixteen horses. It is well that the explosion did not occur later in the day, or the disaster might have been a serious one.

The Iron Trade has been again rather more active. It is apparent that the works which have managed to keep going during the time of adversity are much better employed. In fact, employment is not so scarce now. Among the signs of improvement it may be noted that another furnace has been re-lighted at Abersychan, and that 50 coke ovens—which have been idle for four years—are to be re-lighted. The American demand continues good, and not only are orders for old material, which have greatly tended to reduce stocks coming to hand, but now iron and steel rails are being made for shipment to the United States. In one or two cases it is reported that prices have slightly improved. The demand for iron bars is also better, and pig-iron sells at prices rather more in favour of makers. As to the Tin-Plate Trade, it is not intended to break up the Manufacturers' Association for Glamorgan and Carmarthenshire. There is a better demand, and nothing is heard of a reduction in men's wages now. At the South Wales Works there is a threatened dispute.

The Coal Trade has not materially changed, but there is a good demand apparent. Many proprietors have good orders in hand, and refuse to book for forward delivery at present rates. The output is, however, good; and shipments are large. Steam qualities sell at late rates, and are well enquired for. House qualities are in good request. At the George Inn pit the colliers have resumed work, having come to terms with the employers. With regard to the dispute at the Pentre Colliery, the arbitrator has given his award in favour of the company on all points. Several meetings of colliers have been held in the district during the past few days. Abortive attempts have been made to re-start Unionism, but the men seem to regard these efforts with but little encouragement. Some seem to think that joining the National Union of Miners would be the best course; others that a local Union should be formed. No unanimity on the point appears to exist.

ELEVATION OF RAILWAYS.—The elevation above the level of the sea of some of the chief railways of the world out of the British Islands is as follows:—The Alpine line at its highest point is 617 metres above the sea level, the Black Forest line 850 metres, the Semmering, 890, and the railway over the Caucasus 975 metres. The

tunnel of the St. Gotthard line attains an elevation of 1154 metres, the Bremner line 1367, and the Mont Cenis line 1338. In America the highest lines are the North Pacific, which at its most elevated point is 1652 metres above the level of the ocean, the Central Pacific 2140, and the Union Pacific 2513 metres. The highest point of the railway over the Andes is 4769 metres above the sea level.

PORTRABLE HYDRAULIC CRANES.—Hitherto the supply pipe to the cylinder of cranes in which the lifting cylinder is contained in a column to which is fixed the jib of the crane has been placed underneath the base of the crane, but it has been found that this method is objectionable, as the pipe and connections are often damaged, and are not easily got at for repairs. There is also great difficulty in getting at the gland of the said pipe for packing purposes. Now the first part of the invention of Mr. C. R. PARKES, of Millwall, consists in arranging the connecting pipe from the supply valves above the base of the crane, the pipe from the cylinder working in a stuffing box which cannot be injured, and is easy to get at. The second portion of the invention relates to a method of closing the supply valve when the ram has reached its full stroke. According to this part of the invention the pillar is turned truly round at the desired place, and a ring is turned to work loose on it. On the ram rising to its full stroke it lifts the loose ring by means of bars or chains, and the free end of a tappet or lever which rests on this ring is thereby moved, and by means of a suitable connection closes the supply valve, so that no more water is admitted to the cylinder. The third part of the invention relates to the formation of a circular groove of a suitable section on the top or the bottom bearing, in which the pillar turns or revolves. In this groove slide buffers of any convenient shape, which can be fixed at any required points by means of bolts tightened by nuts, so that the pillar can be stopped by the buffers at any point over the hatchway of a ship or any other place.

ENGLISH-ITALIAN TECHNICAL DICTIONARY.—Although technical dictionaries of the English, French, and German languages are now pretty numerous, students of the Italian language have hitherto found considerable difficulty in accurately translating technicalities from English into Italian and vice versa; a compact little dictionary—Dizionario Technico Marinaro: A Nautical and Technical Dictionary of the English and Italian Languages—by Captain Raffaele Settembrini, of the Italian Royal Navy, has, however, now been published by Mr. Antonio Morano, of Naples, and the English-Italian portion is excellent. That Captain Settembrini has made his dictionary in accord with modern progress will be judged by the fact that such words as expansion valve, steam dome, steam jacket, wire nails, storm drum, steam hoist, detonating powder, and the like are at once found; and the author has added much to the value of the dictionary, as it is much enhanced by the insertion not only of the equivalent word, but of the definition also; thus—"FIRE-ENGINE, Pompa d'incendio. Piccola pompa fissa o portatile che serve per spegnere un incendio"—so that there can be no doubt as to the word which should be employed. There are many errata in addition to those noticed at the end of the volume, and the Italian-English portion is very meagre; but these are shortcomings which can readily be set right in the second edition. Taken as a whole, Captain Settembrini's dictionary is useful, reliable, and cheap.

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Liverpool, 18th September, 1879.

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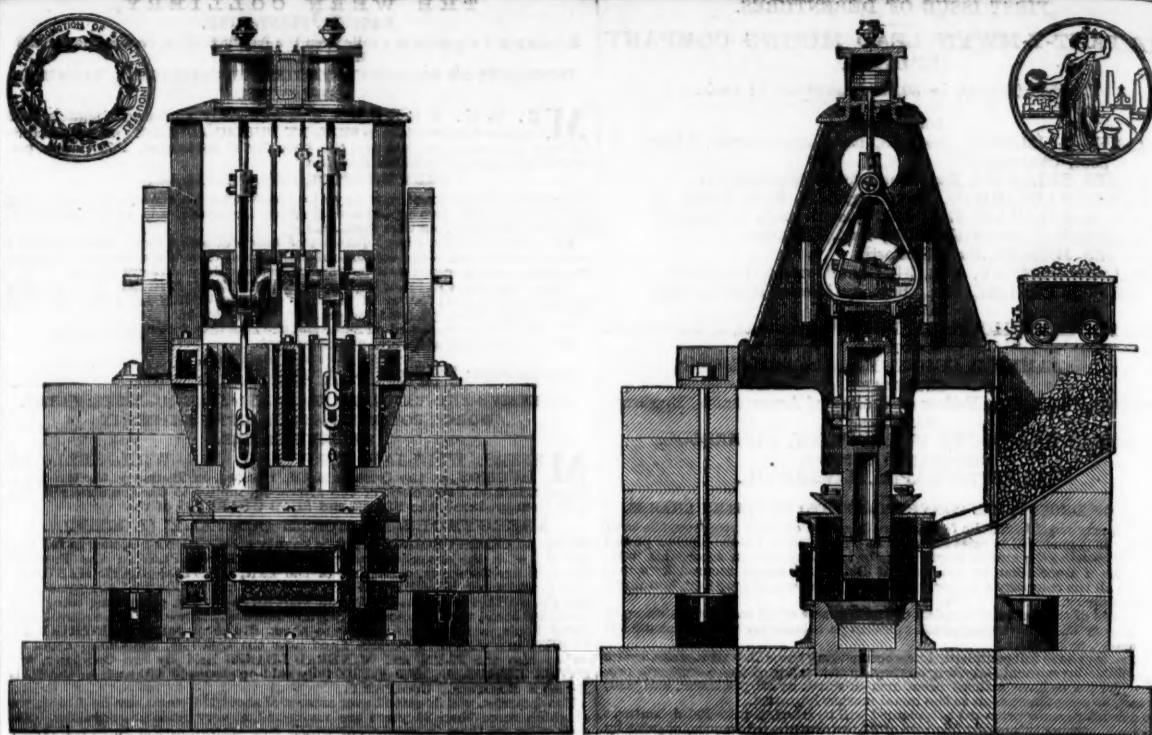
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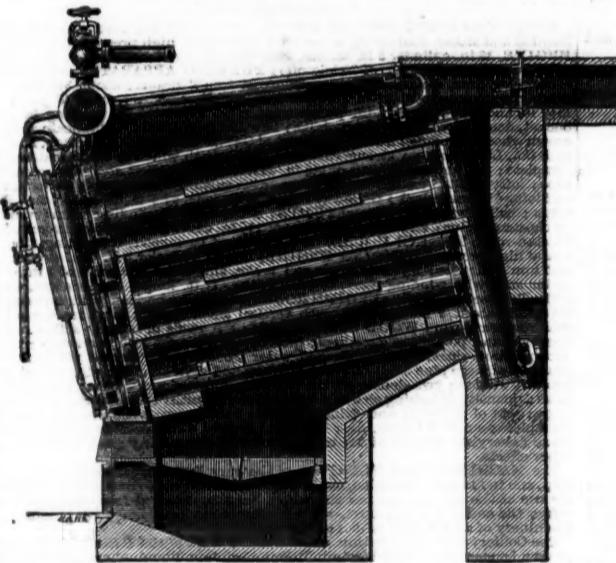
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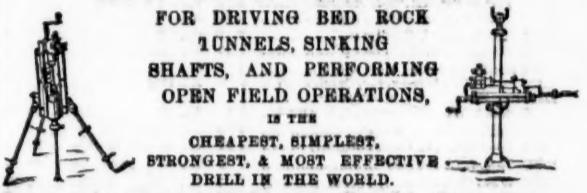
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10000 Caron, t, Cardigan*	2 0 0	2 1/2	2 2 1/2	0 4 0	0 2 0	Oct. 1878	
10000 Barn, t, Illogan†	56 7 6	32 1/2	31 33	308 0	0 1 0	Feb. 1874	
10240 Devon Gt. Consols, c, a, Tavistock†	1 0 0	2	2 1/2 3 1/2	116 15 0	0 5 0	July 1877	
4296 Dolcoath, c, f, Camborne	10 14 10	32	32 33	113 11 3	0 5 0	Aug. 1879	
6400 East Pool, t, Illogan	0 9 9	14 1/2	14 1/2	16 6 3	0 6 0	July 1879	
40000 Glas. Car., c* (30000 sh. £1 pd.)	10000 15s. pd.	1	1/2 3/4	0 13 10	0 0 6	Aug. 1878	
8500 Gorsedd and Merlin Con., t, Flint	2 10 0	2	1 1/2 2	0 5 0	0 5 0	Aug. 1877	
15000 Great Laxey, t, Isle of Man*	4 0 0	16 1/2	15 1/2	24 15 0	0 5 0	Apr. 1879	
6400 Green Hurth, t, Durham*	0 6 0	3 1/2	3 1/2	2 2 0	0 3 0	Mar. 1878	
20000 Grogwinion, t, Cardigan*	2 0 0	2 1/2	2 1/2	3	0 14 10	0 1 10 0	Aug. 1878
2800 Isle of Man, t, Isle of Man†	25 0 0	—	—	82 5 0	0 10 0	Feb. 1879	
20000 Leadhills, t, Lanarkshire	6 0 0	2 1/2	2 1/2	0 15 0	0 3 0	Mar. 1878	
4000 Lisburne, t, Cardiganshire	18 15 0	35	30 35	597 10 0	0 1 0	Mar. 1879	
10000 Mellanear Copper, Hayle*	2 0 0	3 1/2	3 1/2	0 10 0	0 2 0	Aug. 1879	
9000 Minera Mining Co., t, Wrexham*	5 0 0	11	9 10	68 3 2	0 1 6	Aug. 1879	
20000 Mining Co. of Ireland, c, t*	7 0 0	—	—	23 17 6	0 2 6	Jan. 1878	
1024 North Buoy, c, Chacewater	1 14 0	—	—	1 0 0	0 5 0	Oct. 1878	
11829 North Hendre, t, Wales	2 10 0	6 1/2	6 1/2	3 2 6	0 5 0	Sept. 1879	
8063 Ditto	1 0 0	2 1/2	2 1/2	3 2 6	0 2 0	Sept. 1879	
10000 Pant-y-Mwyn, t, Mold (8794 sh. iss.)	2 0 0	—	—	0 3 0	0 2 0	Aug. 1878	
6000 Pennant, t, bar, North Wales*	5 0 0	5	4 5	0 10 0	0 5 0	Mar. 1878	
18000 Prince Patrick, *s-l, Holywell	1 0 0	1/2	1 1/2	0 15 0	0 6 0	July 1879	
12900 Ditto, pref. (8000 sh. issued)	0 10 0	1/2	1 1/2	0 1 6	0 6 0	July 1879	
10000 Red Rock, t, Cardigan	2 0 0	2	1 1/2 2	0 4 0	0 2 0	Jan. 1878	
12000 Roman Gravels, t, Salop	7 10 0	8 1/2	8 1/2	5 0 5	0 5 0	May 1879	
512 South Cadron, c, St. Cleer	1 5 0	55	45 55	744 10 0	1 0 0	Nov. 1878	
6123 South Condurrow, t, Camborne†	6 5 6	12 1/2	12 1/2	5 17 0	0 10 0	Aug. 1879	
12000 St. Harmon, t, Montgomery	3 0 0	2	1 2	0 12 0	0 3 0	July 1878	
4500 South Wheal Frances, t, Illogan†	7 12 4	9	8 1/2 9 1/2	18 14 6	0 10 0	Aug. 1879	
12000 Tankerville, t, Salop*	6 0 0	3 1/2	3 1/2	4 17 6	0 5 0	Jan. 1878	
6000 Tincroft, c, t, Pool, Illogan†	11 10 0	12	10 10 12	50 8 6	0 5 0	May 1877	
15000 Van, t, Llanidloes*	4 5 0	16	15 1/2	16 24 0	0 6 0	May 1879	
3000 West Chiverton, t, Perranzabuloe†	17 5 0	2 1/2	2 1/2	55 10 0	0 10 0	Feb. 1878	
512 West Tolgus, c, Redruth	95 10 0	26	25 27 1/2	33 0 0	1 0 0	Jan. 1879	
600 West Wheal Seton, c, Camborne†	51 0 0	24	22 24	446 0 0	0 15 0	Apr. 1878	
1024 Wheal Eliza Consols, t, St. Austell	18 0 0	—	—	25 10 0	1 10 0	Aug. 1879	
3000 Wheal Pevor, t, Redruth	7 11 0	12	11 1/2 12	1 12 6	0 10 0	July 1879	

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Shares.	Paid.	Oct.	1 1/2	1 1/2	1 19 9	0 0 0 6.	Oct. 1878
35500 Alamillos, t, Spain†	2 0 0	—	1 1/2	1 1/2	1 19 9	0 0 0 6.	Oct. 1878
30000 Almada and Tirito Consol., s†	1 0 0	5/10	5/10 5/16	0 6 3	0 1 0	May 1876	
20000 Australian, c, South Australia†	7 7 6	—	1 1/2 2	1 3 6	0 2 0	Aug. 1879	
20000 Cape Copper Mining, t, South Africa	7 0 0	29	28 29	35 17 6	0 10 0	Sept. 1879	
35000 Cesena Sulph. Co., Romagna, Italy*	10 0 0	—	—	0 19 0	0 1 0	Aug. 1878	
10000 Cioparo, c, Chile* (£20 shares)	16 15 0	—	—	7 11 5	0 3 0	May 1877	
23500 Eberhardt and Aurora, s, Nevada†	10 0 0	2 1/2	1 1/2 2	1 8 0	0 3 0	Dec. 1877	
10000 English and Australian, c, Aus.	2 10 0	13 1/2	13 1/2 13 1/2	2 17 9	0 1 0	Mar. 1879	
25000 Fortuna, t, Spain†	2 0 0	4 1/2	3 1/2 4	7 6 5	0 1 6	Sept. 1879	
55000 Frontino & Bolivia, g, New Gran.*	2 0 0	2 1/2	2 1/2 2 1/2	0 3 6	0 1 0	Feb. 1879	
15000 Linares, t, Spain†	3 0 0	4 1/2	3 1/2 4	17 14 10	0 2 0	Sept. 1879	
10000 Pontgibaud, s-l, France	20 0 0	18	16 18	27 6 9	0 7 6	June 1879	
100000 Port Phillip, g, Clunes† (£2 shares)	1 0 0	—	1/2 1/2	1 12 0	0 1 0	Mar. 1879	
54000 Richmond Consol., s, Nevada†	5 0 0	8 1/2	8 1/2 9	7 9 0	0 7 6	Aug. 1879	
40000 Santa Barbara, g, Brazil	0 10 0	13/4	13/4 13/4	0 7 3	0 1 6	May 1879	
120000 Scottish-Australian Mining Co.*†	1 0 0	2	1 1/2 2	15 p. cent.	—	May 1879	
80000 Ditto, New	0 10 0	1	3 1/2 1	15 p. cent.	—	May 1879	
22500 Sierra Buttes, g, California†	2 0 0	2	1 1/2 2	2 2 8	0 1 6	Apr. 1878	
40625 Ditto, Plumas Eureka	2 0 0	2 1/2	2 1/2 2 1/2	2 1 0	0 3 0	Oct. 1878	
253000 St. John del Rey† (£5 Stock and multiples dealt in)	265 275	12 1/2 p.c. for half-year	—	100 100 100	0 0 0	June 1879	
25000 Victoria* (London), g, Australia	1 0 0	—	3/4 3/4	0 13 1/2	1 0 0	7 1/2 June 1879	
2100 W. Prussian (5500 pref. sh. £10 pd.)	10 0	0	10 1/2	10 10 0	1 0 4	July 1879	

* Have made calls since last dividend was paid.

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Shares.	Paid.	Last wk.	Clos. pr.	Paid.	Last wk.	Clos. pr.
2560 Aberllyn, t, bl, Carnarvon	10 0	0	12	10 12	0	—
12000 Asheton, t, Carnarvonshire*	5 0	0	—	5 6	5 6	—
11582 Bedford Univ., *t, Tavistock (21 lab.)	0 4	0	—	3 4	3 4	—
30000 Bettws-y-Coed, t, Cardigan	1 0	0	—	1 2	1 2	—
8000 Blaen Caelan, *t, Cardigan	3 0	0	—	3 0	3 0	—
339 Blue Hills, t, St. Agnes	4 6	6	—	3 1/2 3	3 1/2 3	—
30000 Boddiris, *t, bl, Denbighshire	1 0	0	—	1 2	1 2	—
200 Botallack, t, St. Just	126	0	25	20 25	20 25	—
10000 British, t, Wrexham	2 0	0	—	3 2	3 2	—
258 Brownhelly, t, St. Neot	0 10	0	—	1 1/2 1	1 1/2 1	—
20000 Bwtch United, *t, Cardigan	12	6	—	1 1/2 1 1/2	1 1/2 1 1/2	—
50000 Cambrian, *s-l, Cardiganshire	2 0	0	—	2 1/2 2	2 1/2 2	—
20000 Foxdale, t, I. of Man (22 sh.)	1 5	0	—	1 5	1 5	—
5120 Clementina, t, Llanwrst*	1 0	0	—	1 1/2 1/2	1 1/2 1/2	—
25000 Coed Mawr, Pool, *t, Carnarvon	2 0	0	—	2 1/2 2	2 1/2 2	—
7500 Combellack, *t, Wendron	2 0	0	—	—	—	—
8000 Combmarin, *t, North Devon	0 8	6	—	3 1/2 3	3 1/2 3	—
2450 Cook's Kitchen, t, Illogan†	26 14	9	2 1/2	2 1/2 2 1/2	2 1/2 2 1/2	—
6400 Crook Burn, *t, Cumberland	0 5	0	—	1 1/2 1	1 1/2 1	—